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(ICRICEIT-24) **PROCEEDINGS**

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Department of Information Technology

4rd International Conference
on
"Recent Innovations in Computer Engineering and Information Technology (ICRICEIT-2024)"

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&
Editor in Chief

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Sri. M. LAXMAN REDDY
CHAIRMAN

MESSAGE

I am extremely pleased to know that the Department of Information Technology of SMEC is organizing 4th International Conference on "Recent Innovations in Computer Engineering and Information Technology–2024 (ICRICEIT–2024)" on 17th and 18th December 2024. I understand that the large number of researchers has submitted their research papers for presentation in the conference and for publication. The response to this conference from all over India and Foreign countries is most encouraging. I am sure all the participants will be benefitted by their interaction with their fellow researchers and engineers which will help for their research work and subsequently to the society at large.

I wish the conference meets its objective and confident that it will be a grand success.

M. Laxman Reddy

M. LAXMAN REDDY
Chairman

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Sri. G. CHANDRA SEKHAR YADAV
EXECUTIVE DIRECTOR

MESSAGE

I am pleased to state that the Department of Information Technology of SMEC is organizing 4th International Conference on "Recent Innovations in Computer Engineering and Information Technology -2024 (ICRICEIT–2024)" on 17th and 18th of December 2024. For strengthening the "MAKE IN INDIA" concept many innovations need to be translated into workable product. Concept to commissioning is a long route. The academicians can play a major role in bringing out new products through innovations.

I am delighted to know that there are large number of researchers have submitted the papers on Interdisciplinary streams. I wish all the best to the participants of the conference additional insight to their subjects of interest.

I wish the organizers of the conference to have great success.

G. CHANDRA SEKHAR YADAV
Executive Director

Dr. P. SANTOSH KUMAR PATRA
PROFESSOR & GROUP DIRECTOR

ISBN: 978-93-94246-55-3

MESSAGE

I am delighted to be the Patron & Program Chair for the 4rd International Conference on "Recent Innovations in Computer Engineering and Information Technology-2024 (ICRICEIT–2024)" on 17th and 18th of December 2024. I have strong desire that the conference to unfold new domains of research among the Information Technology fraternity and will boost the knowledge level of many participating budding scholars throughout the world by opening a plethora of future developments in the field of Information Technology.

The Conference aims to bring different ideologies under one roof and provide opportunities to exchange ideas, to establish research relations and to find many more global partners for future collaboration. About 138 research papers have been submitted to this conference, this itself is a great achievement and I wish the conference a grand success.

I appreciate the faculties, coordinators and Department Head of Information Technology for their continuous untiring contribution in making the conference a reality.

(Dr. P. SANTOSH KUMAR PATRA)
Group Director

ISBN: 978-93-94246-55-3

Dr. M. SRINIVAS RAO
PRINCIPAL

MESSAGE

Contemporary Society is technological and relies on technology for various aspects of daily life. There is no life without digital platforms, Internet, apps, codes, etc. Navigating the complexities of a technological society requires a balance between embracing innovation and addressing the challenges that come in the way. Considering the immediate needs of the technical Society, SMEC has been organizing International Conferences every year which really help a candidate in acquiring technical skills and making themselves familiar with the new inventions.

International Conferences are a Perfect Platform for enthusiastic researchers to come up with their innovative ideas, and I am delighted that SMEC is organizing the International Conference on Recent Innovations in Computer Engineering and Information Technology this academic year as well to enhance the skills of desiring participants. The showcase of new ideas and the latest technological advancements through this Conference would facilitate the transfer of technology, helping participants to get updated with the latest tools and methodologies. I firmly believe that this Conference serves as the catalyst for change by bringing attention to pressing issues in different fields, encouraging discussions, fostering collaboration, and promoting initiatives that address different challenges on a global scale. It is an excellent opportunity to broaden our knowledge, establish meaningful connections, and contribute to advancing engineering research. I assure you that the commitment to excellence in education and research is reflected in this Conference, providing a unique platform for learning and growth.

Around 138 research papers were submitted to this Conference. I wish the authors a promising future and the Conference a grand success.

I appreciate the continuous efforts and dedication of the HOD of Information Technology and faculty members for their invaluable contribution to advancing global discourse. My most profound appreciation to the organizers and coordinators for organizing a conference of such caliber.

Dr. M. Srinivas Rao
Principal

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Dr. SANJAY KUMAR SUMAN
DEAN R&D

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MESSAGE

Research, curiosity and discovery has been in existence ever since man's presence on this planet millions of years ago, civilization has been characterized by curiosity and discovery.

Therefore, the curiosity to explore what will happen, how it happens, is there a better way to do it, has been the driving force behind all research efforts. During the past few decades, the engineering faculties have taken a number of initiatives to reorient the engineering machinery to play leading roles in the industrial development process.

I am delighted to acknowledge the international conference on 4th International Conference on "Recent Innovations in Computer Engineering and Information Technology - 2024 (ICRICEIT–2024)" on 17th and 18thof December 2024 organized by the Department of Information Technology. I appreciate organizing team for showing their keen interest in organizing a successful conference to provide a platform for contributors to explore new ideas and exchange research findings among researchers.

I thank the support of all students, authors, reviewers, conference team, faculty members, and conference Convenor for making the conference a grand success.

Best Wishes

Dr. Sanjay Kumar Suman
Dean R&D

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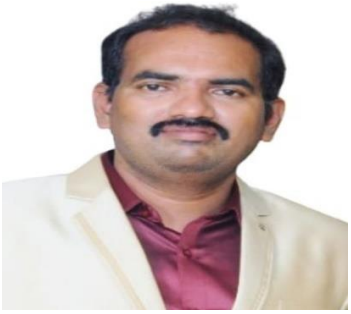
Dr. N. KRISHNAIAH,
Professor and HOD - IT



MESSAGE

I am delighted to welcome you all to the 4th International Conference on "Recent Innovations in Computer Engineering and Information Technology (ICRICEIT–2024)" to be held on 17th and 18th December 2024. This conference, organized by the Department of Information Technology, aims to bring together experts, researchers, academicians, and industry professionals to share their insights, innovations, and developments in the rapidly evolving fields of computer engineering and information technology.

In today's world, technological advancements are shaping every facet of our lives, and it is imperative that we stay at the forefront of these changes. ICRICEIT–2024 serves as an excellent platform to discuss the latest trends, emerging technologies, and ground breaking research that are transforming the landscape of the IT and computer engineering industries.

The Department of Information Technology is proud to host this conference, as it encourages collaboration, fosters knowledge exchange, and provides an opportunity for students and professionals to engage in thought-provoking discussions. We believe that this conference will inspire new ideas, encourage interdisciplinary collaborations, and contribute to the continuous growth of the IT sector.

I extend my sincere gratitude to all the speakers, delegates, and participants for their contributions and for being part of this exciting event. I am confident that ICRICEIT–2024 will be a resounding success and will serve as a valuable resource for all involved.

Wishing you all an enriching and fruitful experience during the conference.

Warm regards,

Dr. N. Krishnaiah
HoD-IT and Convener

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Paper ID: ICRICEIT-23-001

CUSTOMIZED WEB BOOK RECOMMENDATION ENGINE USING INTEGRATED MACHINE LEARNING APPROACHES

*Dr. N. Krishnaiah
[1]Professor and HOD IT,
St. Martin's Engineering College, Secunderabad, Telangana – 500100
*Corresponding Author
Email: drnkrishnaiahit@smec.ac.in

ABSTRACT

Recently, the scientific world has become interested in recommender systems research due to its exponential development. The COVID-19 pandemic has caused an exponential increase in the number of books available online, making it extremely difficult for readers to identify relevant books within the large e-book sector. According to user ratings and interests, personal recommendation systems have developed as an efficient way to search for relevant books. Recommendation systems are robust emerging technologies that aid consumers in finding products that they wish to purchase. Recommendation systems are often implemented to suggest proper goods to end customers. Recently, websites that offer books online contest with one another based on a wide range of criteria. One of the best methods to boost profits and keep customers is a recommendation system. Users are not satisfied with the current systems since they extract unnecessary information from them. To generate highly effective and productive recommendations, this study proposes the Personalized Online Book Recommendation System (PO-BRS), which is based on machine learning techniques. The authors proposed hybrid machine learning approaches that combine two or more algorithms to improve the recommendation system's ability to suggest books based on the interests of the reader. As a result, recommendations based on a specific book are found to be more accurate and profitable than systems that depend on user input.

Key Words: Personalized Book, Recommendation System, e-book, Machine Learning, Filtering; Classification

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Paper ID: ICRICEIT-23-002

DEEP LEARNING BASED ABNORMAL EVENT DETECTION IN PEDESTRIAN PATHWAY

Pulipati Srestha [1], A Sriram [2], Ch Manikanta [3],*N Krishnaiah[4]

[1,2,3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[1]Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: drnkrishnaiahit@smec.ac.in

ABSTRACT

A video surveillance system is capable of detecting any kind of motions that are unusual and hence proves to be a major contributor of the surveillance sector. The unusual or strange movements that have been recorded by the surveillance cameras have been used and their patterns have been studied. The pattern that does not match with the patterns of normal behaviour are then used captured. In video sequences they can be seen in numerous ways which includes bikers, skaters, small carts in pedestrian pathways etc. The main aim of the study is to develop an efficiently working Video Anomaly Detection (VAD) system that is capable of identifying and analysing strange movements in videos using the techniques of deep learning and image processing.

Key Words: Video surveillance, Image processing, VAD, Deep learning, Patterns

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Paper ID: ICRICEIT-23-003

HUMAN DISEASE PREDICTION SYSTEM BASED ON SYMPTOM ANALYSIS USING MACHINE LEARNING

G Uma naga malleshwari [1,] M Deeksha Reddy [2], R Srujan Reddy [3] ,*T Bhargavi [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: tbhargaviit@smec.ac.in

ABSTRACT

As the world is running behind time and money many of the people are not much focused on their health and 40% of people forget the diseases which may lead them to dangerous disorders later. Nowadays scientific medical doctors are adopting many clinical technologies and methods for identifying and diagnosing the disease. The success treatment is continuously gained via away of proper and correct prognosis. This mission is based on the symptoms which completely uses the machine learning and python programming language along with Random Forest and Naive Bayes for better accuracy. The GUI was made by using the Python Tkinter. According to analysis, seventy percent of people in India who suffer from common sickness are facing the loss of life because of lack of early detection of the disease and this is the reason to develop this mission. People can use this at their handy place and function an examination in their work place or at home by using the GUI.

Key Words: Prognosis, Diagnosis, GUI, Tkinter, Machine learning, Random Forest, Naive Bayes.

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Paper ID: ICRICEIT-23-004

DEEP LEARNING ENABLED SEMANTICCOMMUNICATION SYSTEM

Billa Rohan Reddy [1] , S Revathi [2] , Thota Sai Kiran [3] ,*A Bhasha [4]

[1,2,3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*****Corresponding Author

Email: abhashait@smec.ac.in

ABSTRACT

Recently, deep learned enabled end-to-end (E2E) communication systems have been developed to merge all physical layer blocks in the traditional communication systems, which make joint transceiver optimization possible. Powered by deep learning, natural language processing (NLP) has achieved great success in analysing and understanding a large amount of language texts. Inspired by research results in both areas, we aim to provide a new view on communication systems from the semantic level. Particularly, we propose a deep learning based semantic communication system, named Deep SC, for text transmission. Based on the Transformer, the Deep SC aims at maximizing the system capacity and minimizing the semantic errors by recovering the meaning of sentences, rather than bit- or symbol-errors in traditional communications.

Key Words: Deep Learning, Machine Learning, Image understanding, Recognition, Classification, Satellite Imagery

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Paper ID: ICRICEIT-23-005

IMPLEMENTATION OF TEXT-TO-IMAGE GENERATORS IN THE DEVELOPMENT OF USER -FRIENDLY INTERFACE

Y Yuganand Sree[1], B Prashanth[2] , D Shiva Kumar [3],*V Chandra Prakash [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*****Corresponding Author

Email: vchandraprakashit@smec.ac.in

ABSTRACT

The generation of high-quality images with specific styles using Text-to-image Generators became more accessible due to the distribution of different diffusion models, which through the methodology Diffusion Training and Dream booth technology. The main objective is getting a better efficiency in the development of a Usability Interface (UI) for a website. The members of the development refined Stable Diffusion models, to able to generate images with the styles:"Face book Algeria" (Algeria style) and &"black silhouette icons" (icon style).With the speed and simplicity of image generation, the team was able to reduce cost and times in the development. From the total number of images generated, 4 images with Algeria Style and 17 with icon style were chosen to add at the UI. The main result of the research showed that after the implementation, there was a significative change with respect to other work previously performed in the same company. The hours spent on frontend development were reduced by 81.65%, and costs were reduced by 22.80%. In conclusion, the Post- test collected indicates notable improvements in the efficiency of the development. The implementation of text-to-image generations has proven its effectiveness in to reduce the cost and time of UI development.

Key Words: Deep Learning, Dream booth technology, Algeria style, Icon style

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Paper ID: ICRICEIT-23-006

FAKE PROFILE IDENTIFICATION USING MACHINE LEARNING ALGORITHMS

Bora Jhansi[1], Ambati Kavya [2] ,Tenugu Ganga Prasad [3] , *S Veeresh Kumar [4]

[1,2,3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: sveereshit@smec.ac.in

ABSTRACT

OSNs have revolutionized social interactions by enabling easy connections and personal activities online. Fake profiles pose a significant challenge on social media platforms, leading to impersonation, defamation, and misinformation. Current methods for detecting fake profiles, such as graph-level activities and feature analysis, are becoming outdated and less effective. The study utilizes a benchmark dataset augmented with manually curated data and employs data cleaning techniques for enhanced data quality. Machine learning models, including various classification algorithms, are trained and evaluated using cross-validation techniques.

Key Words: Fake profile detection, Social media Machine learning, Supervised learning, Unsupervised learning

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Paper ID: ICRICEIT-23-007

COTTON LEAF DISEASE DETECTION USING CONVOLUTIONAL NEURAL NETWORKS (CNN)

Thirukkovela Sai Vaishnavi [1], CR. Ruchitha [2] , Sai Chandra Shekar [3] ,*K Radha [4]

[1, 2,3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*****Corresponding Author

Email: kradhait@smec.ac.in

ABSTRACT

Deep learning is a subset of artificial intelligence. It's a form of artificial intelligence and machine learning that attempts to simulate the way humans pick up specific types of information. The goal of this project is to create a deep learning model based on Convolutional neural networks that can distinguish between healthy and diseased leaves. Images of healthy and rotting leaves are included in the dataset. It has also become a centre for studies on agricultural plant protection, such as the detection of plant diseases and the assessment of pest ranges. This study has also discussed about some of the problems and issues that are currently being faced and need to be addressed. Library packages such as KERAS, MATPLOTLIB, NUMPY, and OPENCV have been utilized here.

Key Words: Deep learning, Image recognition, KERAS, MATPLOTLIB, NUMPY, OPENCV

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Paper ID: ICRICEIT-23-008

PERFORMANCE EVALUATION OF MACHINE LEARNING AND NEURAL NETWORK ALGORITHMS FOR ACCURATE WINE QUALITY PREDICTION

Sate Vignesh [1], Dharshanala Nithin [2], Alineni Sai Chandu [3],*M Hari Kumar [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: mharikumar@smec.ac.in

ABSTRACT

Wine quality assessment plays a crucial role in both consumer satisfaction and industry success. The quality of a wine is important for the consumers as well as the wine industry. The traditional (expert) way of measuring wine quality is time-consuming. Nowadays, machine learning models are important tools to replace human tasks. In this case, there are several features to predict the wine quality but the entire features will not be relevant for better prediction. So, our thesis work is focusing on what wine features are important to get the promising result. For the purpose of classification model and evaluation of the relevant features, we used three algorithms namely support vector machine (SVM), naïve Bayes (NB), and artificial neural network (ANN).

Key Words: Support Vector Machine, Naïve Bayes, Artificial Neural Networks

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Paper ID: ICRICEIT-23-009

ENHANCING PASSWORD SECURITY VIA SUPERVISED LEARNING

S Keerthana[1], Gogikar Rahul [2,] Chinthapelli Sanjay [3,*] M Sandhya Rani[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*****Corresponding Author

Email: msandyait@smec.ac.in

ABSTRACT

Text-based passwords are currently the most widely used form of authentication and are expected to remain so. However, since these passwords are typically made up of meaningful strings, machine learning and deep learning algorithms can help developers assess their strengths and predict their vulnerability to brute-force attacks. Advanced techniques such as Long Short-Term Memory (LSTM) and Generative Adversarial Networks (GAN) can generate lists of similar and expected text passwords by learning the patterns of how users create and select their passwords. This paper explores using machine learning algorithms to categorize passwords into three levels: strong, moderate, and weak. We also evaluate whether machine learning or deep learning techniques can learn the patterns used in hashing techniques. Furthermore, we have developed a password generation model using Gated Recurrent Unit (GRU) to create new passwords based on learned patterns.

Key Words: Long Short-Term Memory (LSTM), Generative Adversarial Networks (GAN), Gated Recurrent Unit

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Paper ID: ICRICEIT-23-010

PATIENT'S HEALTH ANALYSIS AND MONITORING USING MACHINE LEARNING TECHNIQUES

Pulgam Bhavitha Reddy [1], Gopidi Sanjana [2] ,Dharamsoth Pavan Nayak [3],*G. Sathish[4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gsathishit@smec.ac.in

ABSTRACT

The main aim of this study was to analyse patient health using Machine Learning (ML). To do this, we used the Extreme Gradient Boost (XG Boost) classifier and auto-ML-Pycaret techniques. The sequential procedure we followed for the XG Boost model is data analysis, feature engineering, and model building, which are discussed in this paper. For these tasks, we used data science tools such as the Jupyter notebook and Google Colab (GC).The accuracy rate for the first ML model was 87%, and for the auto ML Pycaret model, we achieved 88% accuracy. Based on the accuracy percentages and time factor, we observed that the auto-ML Pycaret model performed better than the XG Boost model.

Key Words: Machine Learning (ML), Pycaret, Accuracy, Health Pattern Check, Extreme Gradient Boost (XG Boost).

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Paper ID: ICRICEIT-23-011

WILL THE STUDENT GET AN A GRADE? MACHINE LEARNING-BASED STUDENT PERFORMANCE PREDICTION IN SMART CAMPUS

Saurabh Kumar[1], Pudari Tharun [2] , Duddeda Bharath[3] ,*Dr. B Laxmi Kantha [4]

[1,2,3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: drblaxmiit@smec.ac.in

ABSTRACT

Student performance prediction in a smart campus can enhance academic monitoring and decision-making. To predict if a student will earn an A grade (90 or higher), past performance data from three courses is used to train various machine learning models. These models include linear discriminant, logistic regression, Naive Bayes, support vector machine, decision tree, K-nearest neighbors, and bagged trees. Performance is evaluated using accuracy, precision, recall, and F1-score, considering one to three features (high school grade, course midterm grade, and absence percentage). Results show that these models can predict student performance with up to 99% accuracy, with bagged trees and K-nearest neighbors performing the best.

Key Words: Logistic regression, Naive Bayes, Support Vector Machine, Decision tree, K-nearest neighbors

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Paper ID: ICRICEIT-23-012

PASSWORD MANAGER WITH MULTI-FACTOR AUTHENTICATION

Kavya Gundoju[1], Gajabhimkar Dheeraj[2], Teddu Sanjay Kumar [3], *T Bhargavi[4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: tbhargaviit@smec.ac.in

ABSTRACT

Data breach is a serious issue as it leaks the personal information of more than billions of users and their privacy is compromised. More than 77% of organizations do not have a Cyber Security Incident Response plan. So, it is necessary to be informed of network security and ways to store and generate secured passwords. Having different and random passwords for one's digital accounts can exponentially increase the security of user's data. The goal of this project is to build a password manager which can securely store and encrypt passwords and other data. The multifactor authentication will provide increased security to validate the user into password management system. Multifactor authentication system includes physical security key and graphical password authentication.

Key Words: Multifactor authentication system (MAS)

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Paper ID: ICRICEIT-23-013

INDIAN CURRENCY CLASSIFICATION USING DEEP LEARNING TECHNIQUES

Jakkula Goutham [1], Vemula Bhoomika [2] ,Gudepu Timothi [3],*A Sravani [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: asravaniit@smec.ac.in

ABSTRACT

Progression and evolution of technology has superseded mechanical human workload in almost every domain with the operation of machines. The currency paper recognition is applicable in various domains of automatic selling goods systems and in banking systems. In the modern transition world for the automatic current recurring systems, the precise identification of paper currency notes is indeed an essential need. Machines often find it difficult in identifying and recognizing the currencies in the market when the currency notes have turned bleary and damaged. It is hard for visually disabled people without any technological support or assistance to predict and analyze genuine currency notes. The accuracy of currency notes analysis identification have been refined and boosted throughout with the assistance of these models. Our research methodologies are in line and meeting the desired expectations. This paper presents an Indian Paper Currency Prediction Analysis, proposes an optimized model to recognize the currencies effectively.

Key Words: Deep learning, CNN, Currency Recognition, Classification, genuine currency, Accuracy, Optimized model.

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Paper ID: ICRICEIT-23-014

REAL TIME SYSTEM FOR CROWD DETECTION AND MONITORING USING MACHINE LEARNING

Vadithya Vinod[1], Kalwakuntla Sathwika [2] , Jarupla Pradeep Nayak[3] ,*B Ganga Bhavani[4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: bhavani.smec@gmail.com

ABSTRACT

The project "A Real Time Crowd Detection and Monitoring System" aims to detect and monitor crowds in real-time using machine learning. This system will use cameras to capture live video and analyze it using advanced computer algorithms. These algorithms will be trained to recognize and count people accurately, helping us understand crowd density and movement. In order to prevent outbreaks and provide better healthcare, appropriate crowd detection and monitoring systems must be deployed in public areas. By effectively implementing social distancing measures, the number of new infections can be greatly decreased. This system is developed using YOLO, SSD, Density Estimation using CNNs and Deep Learning Models with Attention Mechanisms to detect and count the number of people gathered at an instance. The system raises an alarm to alert the people and adhere to the rules if the gathering is more than the threshold/permitted number of people in the cluster.

Key Words: YOLO,SSD,CNN

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Paper ID: ICRICEIT-23-015

QR-CODE PIXELATED ANTENNA WITH MULTI-FACTOR AUTHENTICATION FOR WIRELESS AND SECURITY APPLICATIONS

Thakur Rameshwarsingh[1], Kasarla Ganesh [2] , Keesara Soumya[3],*S Karthik Raj[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: skarthikrajit@smec.ac.in

ABSTRACT

Quick response (QR) codes can be used for antenna applications, in addition to being used as Information sharing and security devices. QR-Code pixelated antennas present a game-changing solution for wireless communication and security applications. Their ability to facilitate efficient data transfer, compact form factor, compatibility with existing infrastructure, and enhanced security measures make them highly desirable for a wide range of applications, ranging from consumer electronics to industrial systems. The aim of this paper is to demonstrate the feasibility and success of QR code structures as antennas in wireless communication applications. It is designed on a low-cost FR4 substrate board. The suggested antenna configuration contains a modified coaxial-fed patch resonator with a QR pixelated configuration and a full ground plane providing a broad bandwidth of 8 to 9.6 GHz. The critical characteristics have been examined in simulations and sufficient return loss, radiation gain, levels are all achievable with the planned compact QR antenna design.

Key Words: QR Code, Pixelated Antenna, Multifactor Authentication (MFA), Wireless Communication, Cyber Security

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Paper ID: ICRICEIT-23-016

APPLYING MACHINE LEARNING TO PREDICT SEVERITY LEVELS AND FIND ROOT CAUSES IN FLIGHT ACCIDENTS

Surukutla Sreeshanth [1], Kommawar Sapneel [2] , Kommana Manikanta [3],*G Prabakaran [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gprabakaranit@smec.ac.in

ABSTRACT

The safety of the airlines and their passengers should be our top priority. Various safety checks are performed continuously and manually round-the-clock, and the airline team takes care of all safety precautions and measures, but there are still some cases of accidents due to a variety of factors. To improve aviation safety and stop future accidents, it is essential to estimate how severe a flying mishap would be. In this study, we provide a method that estimating the seriousness of flying incidents.

Key Words: Machine learning, Predictive Analytics, Severity Classification, Root Causes, Data Mining, Unsupervised Learning.

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Paper ID: ICRICEIT-23-017

BINARY IMAGE CLASSIFICATION USING A COMBINATION OF MACHINE LEARNING AND DEEP QUANTUM NEURAL NETWORKS

M Neetha [1], Mamidi Sandeep [2], Thoom Siddhartha[3],* K Venkata TirugopalaReddy [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kvenkatreddyit@smec.ac.in

ABSTRACT

High precision in image classification is challenging due to the complexity of images and the vast array of defining features. Deep learning-based artificial intelligence, a rapidly progressing field, plays a crucial role in various industries such as image classification, computer vision, text mining, voice recognition. Deep CNN excel in advanced image categorization and processing, particularly for high-resolution images. This study introduces a Deep QNN technique for binary image categorization, delving into the latest research on image classification using cross-entropy functions, deepW learning, and convolutional neural networks.

Key Words: CNN, QNN, Deep Learning

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Paper ID: ICRICEIT-23-018

ANOMALIB A DEEP LEARNING LIBRARY FOR ANOMALY DETECTION

Thurpu Sandeep Reddy[1], B Vijay Laxman Raju [2], Mohammad Faisal [3], *K Yadagiri [4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kyadagiriit@smec.ac.in

ABSTRACT

This paper introduces anomalib1, a novel library for unsupervised anomaly detection and localization. With reproducibility and modularity in mind, this open-source library provides algorithms from the literature and a set of tools to design custom anomaly detection algorithms via a plug-and- play approach. Anomalib comprises state-of-the-art anomaly detection algorithms that achieve top performance on the benchmarks and that can be used off-the-shelf. In addition, the library provides components to design custom algorithms that could be tailored towards specific needs. Additional tools, including experiment trackers, visualizers, and hyper- parameter optimizers, make it simple to design and implement anomaly detection models. The library also supports Open VINO model-optimization and quantization for real- time deployment. Overall, anomalib is an extensive library for the design, implementation, and deployment of unsupervised anomaly detection models from data to the edge.

Key Words: Deep learning, Machine learning, Image understanding, Recognition, Classification

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Paper ID: ICRICEIT-23-019

DETECTION OF GROUND HOLES USING DEEP LEARNING TECHNIQUES FOR SURVEILLANCE APPLICATIONS

Veuturi Venkata Chamikar[1], Matam Pooja[2], Muppala Maruthi [3], *G Gouthami [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: ggouthamiit@smec.ac.in

ABSTRACT

For border area security and surveillance, maintaining vigilance and detecting potential threats is of utmost importance. While surveillance drones have proven effective in enhancing border area monitoring, there are instances where ground pits can raise suspicion. Ground pits, often excavated or dug into the earth, can serve as hidden locations for various illicit activities. The inconspicuous nature of ground pits makes intruders attractive to criminals attempting to evade detection. The CNN efficiently learns features from images, enabling precise identification of ground holes across various environments. Deep learning has shown promising potential in automating object detection through visual data. Integrating the deep learning model into drones would provide a more comprehensive and robust surveillance system. In this paper, an image dataset of ground pits referred to as Ground Pit Image Dataset (GPID) is developed to train and test YOLO. This dataset contains 300 images of different ground pits on various surfaces, captured through drones and annotated using online tools. YOLO has provided more than 90%accuracy, which is better than other deep learning models.

Key Words: Ground hole detection, Deep learning, Surveillance, Safety, Security.

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Paper ID: ICRICEIT-23-020

CAREER PREDCTION WEBSITE LEVERAGING USING MODELS USING MACHINE LEARNING

Pogiri Jyotshna[1], Mamindla Sai Sanjana[2], Palipe John Paul [3], *A Bheem Raj [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: abheemrajit@smec.ac.in

ABSTRACT

Most of the students across the country are constantly in delirium about their career path after their senior secondary schooling. Mostly at the age of 18 students do not have the maturity that they should require in order to choose a right path. Also most people have doubts about whether they have adequate skills or not .so, in this project basically we discuss career prediction which uses web development with machine learning approaches like Decision trees KNN algorithm, Classification to predict a career or field which the student can purse as per his/her interest .Python programming language is used in implementing Machine learning classifiers and algorithms.

Key Words: KNN algorithm, Decision trees, Machine learning classifiers.

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Paper ID: ICRICEIT-23-021

PREDICTING CONSTRUCTION COST INDEX USING MACHINE LEARNING BASED TECHNIQUES

Pashikanti Vaman[1], Mughala Nithin[2], Reddi Mahesh Babu [3] ,*K Koteswara Rao [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kkoteswararaoit@smec.ac.in

ABSTRACT

Construction projects have a great impact on the cost of construction in the process of carrying out construction, which is directly related to the quality of the construction of the entire project. Therefore, it is necessary to continuously improve the understanding of the construction industry. Machine Learning is the use of the powerful computing power of computers, through the continuous update and recognition of data, so as to obtain a large amount of effective information. This presents a predictive analysis of construction of construction project costs with the help of machine learning, with the aim of accurately calculating project costs and predicting construction costs.

Key Words: Random Forest, Decision Trees, Neural Networks.

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Paper ID: ICRICEIT-23-022

MACHINE LEARNING TECHNIQUE FOR PHISHING WEBSITE DETECTION

Mohd Ibraheem[1], Padigela YashaSri[2] , Surannagari Akhilesh[3],*K Surya Kanthi [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: ksuryakantiit@smec.ac.in

ABSTRACT

The Internet has emerged as an indispensable tool in both our personal and professional life in our modem day. As a direct consequence of this, the number of customers who make their purchases over the Internet is quickly increasing. Internet users may be vulnerable to a wide variety of web threats because of this fact. These threats may result in monetary loss, fraudulent use of credit cards, loss of personal data, potential damage to a brand's reputation, and customer mistrust in e-commerce and online banking. Phishing is a sort of cyber threat that may be defined as the practice of imitating a genuine website for the purpose of stealing sensitive information such as usernames, passwords, and credit card numbers. This research focuses on strategies for detecting phishing attacks. This study apply a machine learning approach to detect a phishing attack. As a result, this study able to detect phishing with accuracy 94%.

Key Words: Phishing Attacks, Machine Learning.

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Paper ID: ICRICEIT-23-023

ACCURATE PREDICTION OF WALMART SALES USING MACHINE LEARNING

Malluri Mounika[1],Pariveda Cherishma[2] , Vankayalapati Rikitha[3] ,*T Suresh[4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: sureshtalwarit@smec.ac.in

ABSTRACT

Walmart, one of the largest retail corporations globally, relies heavily on accurate sales forecasting to optimize inventory management, reduce costs, and enhance customer satisfaction. Accurate sales forecasting can improve a company's profitability while minimizing expenditures. The primary objective is to develop a predictive model that can accurately forecast weekly sales for various Walmart stores across different departments. To achieve this, we utilize historical sales data from Walmart, encompassing various features such as store locations, department categories, promotional events, seasonal trends, and macroeconomic factors. This approach not only enhances efficiency but also contributes to improved customer satisfaction by ensuring product availability and reducing stock outs.

Key Words: Machine learning, trend analysis, model evaluation, data scaling, XG Boost, cross validation, external factors

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Paper ID: ICRICEIT-23-024

FAST LANE DETECTION BASED ON ATTENTION MECHANISM

Gudla Sai Krishna[1], Peddi Sion Raj[2], Kadam Sainandana Rao[3],*M Ramesh [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: mrameshit@smec.ac.in

ABSTRACT

As an important subtask in the field of unmanned driving, lane detection has transitioned in recent years from traditional image processing to a deep learning-based neural network approach. However, since the early deep learning methods are based on semantic segmentation at the pixel level, their large networkstructurescannotmeetthereal-timerequirements.Tosolvethereal-time problem, a new network structure based on predefined rows, represented by UFAST, is proposed. In the architecture of this network model, the network parameters are significantly reduced, allowing the system's real-time performance to be satisfied. To improve the performance of recognizing lanes in the framework of this model, we introduce attention mechanism into the model by considering the habits of real human driving. Finally, we not onlyimprovetheperformanceofthemodelframeworkinnon-idealconditionssuchaspoorlightingandvehicleocclusion by nearly 1.9%, but also increase the number of model parameters by less than 0.2% of the UFAST.

Key Words: UFAST, CBAM

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Paper ID: ICRICEIT-23-025

AN ANALYSIS OF MACHINE LEARNING TECHNIQUES APPLIED IN EARLY PROGNOSIS OF DISEASES IN HEALTHCARE

Bandi Indhu Goud[1],Perugu Vignyan[2] ,*G Sathish [3]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gsathishit@smec.ac.in

ABSTRACT

In 21st century there has been significant rise in chronic diseases and other health related problems, and the data in the healthcare industry has significantly grown. Healthcare data is voluminous and difficult to manage by using traditional tools. Machine learning is brought into the picture by the requirement for smart decision support systems that can empower clinicians' to make better choices by applying different algorithms. This study provides an overview of the various types of healthcare data in analysing the work of numerous researchers based on the efficiency for illness prediction and early detection of high-risk diseases. It support Vector Machine (SVM), Random Forest, Decision Trees (DT), K Nearest Neighbour (KNN), Deep Learning, Naive Bayes (NB), Artificial Neural Network (ANN), and Logistic Regression were the Machine Learning methods that were most commonly referenced.

Key Words: Machine learning, Recognition, Classification, Support Vector Machine, Random Forest, Decision Trees, K nearest Neighbour, Deep Learning, Naive Bayes, Artificial Neural Network, and Logistic Regression.

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Paper ID: ICRICEIT-23-026

AN IMPROVED DEEP LEARNING MODEL FOR TEXT CLASSIFICATION

Anupuram Nishanth [1], Baindla Hemanth [2] , Mohammed Ghouse [3], *N Krishnaiah [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: drnkrishnaiahit@smec.ac.in

ABSTRACT

Deep learning technology develops rapidly. Convolutional Neural Network (CNN), as a key technology in deep learning, has been favoured and concerned by many scholars and widely applied in information retrieval, classification, data management, mining and other fields. In order to fully obtain the local features and key words of text, a TCNN-DAM model is proposed based on the study of TCNN model, which aims at maximizing the representation of text features, improving the text classification effect, and promoting the model to better classify in sogou news corpus. Tests show that the improved model has outstanding classification effects, which can effectively improve the accuracy, precision, recall and F1 value of classification.

Key Words: Deep learning, machine learning, Text features, Cclassification, Sogous, Dynamic Attention Mechanism.

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Paper ID: ICRICEIT-23-027

APPLYING MACHINE LEARNING ALGORITHMS FOR THE CLASSIFICATION OF SLEEP DISORDERS

Ashwini Patil[1], Barla Vamshi Krishna [2], Lavudya Rusthum [3],*Dr. B Laxmi Kantha

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

Corresponding Author

Email: drblaxmiit@smec.ac.in

ABSTRACT

Sleep disorder classification is crucial in improving human quality of life. Sleep disorders and apnea can have a significant influence on human health. Sleep-stage classification by experts in the field is an arduous task and is prone to human error. The development of accurate machine learning algorithms (MLAs) for sleep disorder classification requires analyzing, monitoring and diagnosing sleep disorders. This paper compares deep learning algorithms and conventional MLAs to classify sleep disorders. This study proposes an optimized method for the Classification of Sleep Disorders and uses the Sleep Health and Lifestyle Dataset publicly available online to evaluate the proposed model. The optimizations were conducted using a genetic algorithm to tune the parameters of different machine learning algorithms. An evaluation and comparison of the proposed algorithm against state-of-the-art machine learning algorithms to classify sleep disorders. The dataset includes 400 rows and 13 columns with various features representing sleep and daily activities. The k-nearest neighbors, support vector machine, decision tree, random forest and artificial neural network (ANN) deep learning algorithms were assessed.

Key Words: Machine learning, Sleep Disorder, Sleep Apnea, classification, Insomnia

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Paper ID: ICRICEIT-23-028

DETECTION OF CYBERBULLYING ON SOCIAL MEDIA PLATFORMS USING MACHINE LEARNING

B Lahari[1], B Sanjay Yadav[2], M Vinith Reddy[3] ,*A Bhasha

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

Corresponding Author

Email: abhashait@smec.ac.in

ABSTRACT

Cyber bullying is a major problem encountered on internet that affects teenagers and also adults. It has lead to mis-happenings like suicide and depression. Regulation of content on social media platforms has become a growing need. The following study uses data from two different forms of cyber bullying, hate speech tweets from Twitter and comments based on personal attacks from Wikipedia forums to build a model based on detection of Cyber bullying in text data using Natural Language Processing and Machine learning. Three methods for Feature extraction and four classifiers are studied to outline the best approach. For Tweet data the model provides accuracies above 90% and for Wikipedia data it gives accuracies above 80%.

Key Words: Deep learning, Machine learning, Random Forest, Super Vector Machine.

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Paper ID: ICRICEIT-23-029

ANALYZE AND FORECAST THE CYBER ATTACK DETECTION PROCESS USING ADVANCE MACHINE LEARNING TECHNIQUES

B Deepali[1], N Bhoomi Reddy[2] ,B Srujana[3],*T Suresh [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: sureshtalwarit@smec.ac.in

ABSTRACT

One of the most crucial global concerns is the issue of cybercrime, which leads to significant financial losses for nations and their citizens every day. The frequency of cyber-attacks has steadily increased, emphasizing the need to identify the individuals behind these criminal activities and understand their strategies. Although there is a wealth of literature on crime prediction strategies, they may need to be more effectively suited for awaiting cybercrime and cyber-attack techniques. The Support Vector Machine (SVM) linear model achieved the highest accuracy rate among the various cyber-attack methods tested. In the first model, valuable insights on the types of attacks victims were likely to face. Logistic regression, with a high success rate, was the most effective strategy for identifying malicious actors. Our findings indicate that the likelihood of becoming a victim of cyber- attacks decreases with higher levels of education and wealth.

Key Words: SVM, Machine learning, Regression, Rrecognition, Cclassification,Cyber-attacks.

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Paper ID: ICRICEIT-24-030

SELF-SUPERVISED LEARNING FOR ANOMALOUS SOUND DETECTION

G Saketh[1],B Sadgun[2] ,N Pranay[3],*S Veeresh Kumar[4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: sveereshit@smec.ac.in

ABSTRACT

State-of-the-art anomalous sound detection (ASD) systems often use auxiliary classification tasks to learn robust embeddings, but this requires manually annotated class labels. Simpler tasks lead to less informative embeddings and poorer ASD performance. To address this, a self-supervised learning (SSL) approach called Feature Exchange (Feat Ex) is proposed, which doesn't need manual annotations. Feat Ex is compared with and combined with existing SSL methods, resulting in a new state-of-the-art performance on theDCASE2023 ASD dataset, significantly surpassing previous results.

Key Words: Deep learning, Machine learning, audio understanding, Classification, Anomalous Sound Detection.

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Paper ID: ICRICEIT-24-031

RAILWAY TRACK DETECTION BASED ON SEGNET DEEP LEARNING

GR Harshith [1], B Abhilash[2] , N Pavan [3], *V Chandra Prakash[4]

[1, 2,3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: vchandraprakashit@smec.ac.in

ABSTRACT

Railway track detection is crucial in railway infrastructure maintenance, safety, and operational efficiency. This paper proposes a railway track detection method based on the SegNet deep learning architecture. The SegNet model is a convolutional neural network (CNN) designed explicitly for semantic segmentation tasks. By training the SegNet model on annotated railway track images, we enable it to accurately classify each pixel in the input images as either track or non-track. The proposed method leverages the rich feature representation capabilities of deep learning to achieve robust and precise track detection, even in complex and challenging scenarios. We evaluate the performance of our approach on a benchmark dataset, considering metrics such as accuracy, intersection over union (IoU), and mean BF score. The experimental results demonstrate that our method outperforms existing track detection methods regarding accuracy and efficiency. The proposed railway track detection based on SegNet deep learning has the potential to significantly improve railway maintenance practices and enhance overall safety and operational effectiveness.

Key Words: Deep learning, Machine learning,Image understanding

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Paper ID: ICRICEIT-24-032

EEG BASED HUMAN EMOTION RECOGNITION USING DEEP LEARNING TECHNIQUES

G Harshith[1], J V Mani Sharanya Reddy[2],P Sahasri[3] ,*G Sathish [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gsathishit@smec.ac.in

ABSTRACT

The mental state of a person is a combination of very complex neural activities which determine the current state of mind. It depends on a lot of external factors as well as internal factors of the brain itself. It is possible to determine an individual's mental state by analysing their EEG patterns. Using a dataset acquired from Kaggle, ten machine learning techniques were investigated and models were built. The Random Search CV method was used to perform hyper parameter tuning and a comparative study has been portrayed for both tuning and without tuning of hyper parameter. After evaluating the performance parameters, Support Vector Machine (SVM) displayed the best accuracy (95.36%). However, Gradient Boosting (Gr B) depicted promising accuracy of 95.24% whereas K-Nearest Neighbours (KNN) and XG Boost (XGB) both depicted 93.10% accuracy. As a result, with effective integration of the ML based detection method, it is likely to regulate a person's state of mind, which will enable to develop a better understanding of human psychology and forecast their actions.

Key Words: Kaggle, Random Search CV, SVM, KNN, XGB, Gr B, Hyper parameter

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Paper ID: ICRICEIT-23-033

LIGHT-WEIGHT DEEP LEARNING MODEL FOR HUMANACTION RECOGNITION IN VIDEOS

K Tarun Kumar Reddy [1], D Hitesh [2], P Venkat Sahith [3], *T Bhargavi[4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: tbhargaviit@smec.ac.in

ABSTRACT

Human Action Recognition (HAR) from a visual stream has recently attained much researcher consideration in the domain of computer vision. Due to its large applications like monitoring of health, home automation, and tele-immersion, among others. However, it still faces human variances, occlusion, lighting changes, and complicated backgrounds. The evaluation criteria rely on the features collection approach as well as learning data being performed correctly. The success of Deep Learning (DL) has resulted in a variety of impressive outcomes, including neural networks. For this research framework, we used pre-trained deep learning models VGG19, Dense Net and Efficient Net for feature extraction from the sequence of images and classified each action with the help of the Soft Max layer. Testing accuracy from models achieved VGG19- 90.11, DenseNet-92, 57 and EfiicientNet-94.25

Key Words: Deep Learning, Neural Networks.

ISBN 978-93-94246-55-3

Paper ID: ICRICEIT-23-034

CLASSIFICATION OF SUBSPECIES OF HONEYBEES USING CONVOLUTIONAL NEURAL NETWORKS

K Jyotsna[1], Y Vamshika[2], P Lasya[3], *A Sravani[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

Corresponding Author

Email: asravaniit@smec.ac.in

ABSTRACT

Honey bees are vital for humans and the ecosystem; humans use bee products for various purposes and honey bees play an essential role in pollination. Identifying the subspecies of honey bees is essential for beekeepers, bee breeders, and researchers. Conventional methods of identification are time-consuming and expensive, as such, a more efficient and accurate technique is required. This paper proposes a computer vision-based method to classify subspecies of honey bees, with a dataset consisting of seven honey bee subspecies utilized. To the unavailability of a sufficient amount of labeled images to train a model, Transfer Learning (TL) technique has been employed. The Inception v3 model has been utilized as the main Convolutional Neural Network architecture; trained initially using the Image Net dataset and then fine-tuned using the honey bee dataset

Key Words: Transfer learning, Machine learning, CNN, Inception v3 model

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Paper ID: ICRICEIT-23-035

DETECTING TWITTER CYBERBULLYING USING MACHINE LEARNING TECHNIQUES

Mara Akshay[1], G Vinaya Mahesh [2], Pendli Dinesh [3],*B Ganga Bhavani[4]

[1,2,3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

Corresponding Author

Email: bgangabhavaniit@smec.ac.in

ABSTRACT

Social media is a platform where many young people are getting bullied. As social networking sites are increasing, cyber bullying is increasing day by day. To identify word similarities in the tweets made by bullies and make use of machine learning and can develop an ML model automatically detect social media bullying actions. The goal of this paper is to show the implementation of software that will detect bullied tweets, posts, etc. A machine learning model is proposed to detect and prevent bullying on Twitter. Two classifiers i.e. SVM and Naive Bayes are used for training and testing the social media bullying content. Both Naive Bayes and SVM were able to detect the true positives with 71.25% and 52.70% accuracy respectively. But SVM outperforms Naive Bayes of similar work on the same dataset. Also, Twitter API is used to fetch tweets and tweets are passed to the model to detect whether the tweets are bullying or not.

Key Words: Social media, Twitter, Machine Learning.

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Paper ID: ICRICEIT-23-036

DETECTING FAKE NEWS USING ADVANCED MACHINE LEARNING ALGORITHMS

M Vaishnavi[1], A Aadhya[2], R Arjun[3],*S Veeresh Kumar[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

Corresponding Author

Email: sveereshkumarit@smec.ac.in

ABSTRACT

Online media cooperation particularly the word getting out around the organization is an incredible well spring of data these days. From ones point of view, its insignificant effort, direct access, and speedy scattering of data that lead individuals to watch out and global news from web sites. Twitter being a champion among the most notable progressing news sources moreover winds up a champion among the most prevailing news emanating mediums It is known to cause broad damage by spreading pieces of tattle beforehand. Therefore, motorizing fake news acknowledgment is rudimentary to keep up healthy online media and casual association. We proposes a model for perceiving manufactured news messages from twitter posts, by making sense of how to envision exactness examinations, considering automating fashioned news distinguishing proof in Twitter datasets. Our exploratory outcome indicated that SVM and Naïve Bayes classifier beats different calculation.

Key Words: Machine Learning, Fake News Detection, Misleading Information

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Paper ID: ICRICEIT-23-037

FLIGHT TICKET PREDICTION USING GRADIENT BOOSTING REGRESSOR COMPARED WITH LINEAR REGRESSION

P Shiva Ganesh[1], G Harini[2],S Sarvesh[3],*A Bheem Raj[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: abheemrajit@smec.ac.in

ABSTRACT

The purpose of this project is to predict airfare for ticket bookings using the Gradient Boosting. Regression device learning is the set of rules as opposed to a brand-new Linear Regression. The materials and methods required for the project are New Linear Regression algorithm and Gradient Boosted Regression.These algorithms are calculated using a total of 20 examples for the algorithm, and there are two firms that are used to calculate them. The size of the sample was determined to be 10, and it was compared with a group using a G power value of 80%. The values achieved in terms of accuracy are decided by Gradient Boosting Regression as opposed to New Linear Regression as Gradient Boosting Regression is more accurate than New Linear Regression. After going through all of the methods, it has been determined that the airfare forecast is more accurate than the brand-New Linear Regression.

Key Words: Machine learning, Ticket Price Prediction , Gradient Boosting, classification.

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Paper ID: ICRICEIT-23-038

DESIGNING A HIGH SCHOOL COURSE ON MACHINE LEARNING FOR CYBERTHREAT ANALYTICS

Salla Shreya [1], Gandamala Durga Rao[2], Shaik Owais Ali[3], *K Venkat Tiru Gopal Reddy [4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kvenkatreddyit@smec.ac.in

ABSTRACT

Introducing secure computing through the integration of Machine Learning (ML) applications at the early education stage, particularly within high school, presents both benefits and challenges. This paper conceptualizes the imperative, hurdles, and the blueprint for implementing a hands-on machine learning curriculum within school-level computing education. Consequently, this integration is recommended for high school education (9th to 12th grade) due to maturity and comprehension levels of students at this stage. Considering the foundational knowledge and backgrounds of school students, our proposal advocates the adoption of basic and user-friendly ML tool, such as Weka, tailored to the school environment.

Key Words: Secure Computing, Machine learning, Weka Tool, ML Integration, High School Curriculum, Educational Technology

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Paper ID: ICRICEIT-23-039

DEVELOPING A MACHINE LEARNING MODEL TO PREDICT RESULT OF LAW CASES

S Harish [1], G Naveen [2] , S Pragnesh[3], *M Hari Kumar [4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: mharikumarit@smec.ac.in

ABSTRACT

The judicial system is an important component of the nation's democratic system, protecting the rights and liberties of its residents while preserving the rule of law. With time, many necessary changes are made in the judiciary system to maintain peace, trust, and order in the country. But court hearings and proceedings take too much time for a decision. Despite the fact that the legal industry is developing faster than ever with the aid of developing technologies, there are still many unexplored areas and there is always potential for improvement. In this paper, we present a simplified approach, "AI in Law and Practice". The model is developed by utilizing, the most disruptive technology - Machine Learning.

Key Words: AI in Law Practice, The most disruptive technology - Machine Learning, Democratic system, Court hearings, judicial system

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Paper ID: ICRICEIT-23-040

TRANSFER LEARNING INSPIRED FISH SPECIES CLASSIFICATION

U Lokesh[1],S Bhaskar[2],G Nikhil[3]*,G Gouthami[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: ggouthamiit@smec.ac.in

ABSTRACT

Machine learning techniques enable systems to learn important representations from input image data. Convolutional neural networks (CNNs) are a specific implementation of machine learning techniques and are able to create expressive representations from the input image. Hence CNNs are well suited for image processing operations such as classification, clustering, and object detection, etc. The creation of a new effectual deep CNN model involves an extensive training phase. This requires very large datasets, huge computation environments, and longer execution time. Several established deep CNNs are readily available. These networks are pre-trained on massive databases of images. VGG, Res Net, and InceptionResNetV2 are the leading pre-trained CNN models currently being used in numerous image-processing studies. Possibly we can transfer knowledge learned from such models in order to address challenges in different domains. This can be achieved by repurposing a deep CNN model as a feature generator to produce effective features for content based information retrieval applications. This research work proposes a technique for recognizing fish using deep convolutional neural networks such as ResNet-50, InceptionResNetV2, and VGG16 that have been pre-trained using transfer learning.

Key Words: Machine Learning, Convolutional Neural Networks, Image Detection, Recognition Classification, Fish characteristic

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Paper ID: ICRICEIT-23-041

A REVIEW ON THE ROLE OF MACHINE LEARNING IN ANALYZING HUMAN STRESS

J Vikas[1], V Harshika[2], T Nikhitha[3] ,K Yadagiri[4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kyadagiriit@smec.ac.in

ABSTRACT

Stress is one type of epidemic of current world. It generates many diseases and is a big source of human suicide. The main aim of this paper is to determine the work of this study conducted on stress using emerging techniques such as machine learning. This study created a comprehensive image for the work of machine learning in stress management. This study completed in some steps including data collection using closest keywords on Web of Science (Wos) database, design network visualization based on previous data, evaluation of selected research article, and finally conclude the all results. We used 4 closest keywords, 5 research articles, 3 publishers, and 4 journals to analyse the work. The results showed that Support Vector Machine (SVM) easily classify the signals. This study mentioned the future direction for the upcoming research in more scientific and significant manner.

Key Words: Machine learning, deep learning, Stress Detection, Analyzing Human Stress.

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Paper ID: ICRICEIT-23-042

ARTIFICIAL INTELLIGENCE BASED SECURITY SOLUTION FOR DATA ENCRYPTION USING AES ALGORITHM

Varsha[1], K Harish[2],T Nivesh[3], *K Surya Kanthi[4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: ksuryakanthiit@smec.ac.in

ABSTRACT

The Internet of Things (IoT) significantly impacts the transportation industry by enabling autonomous vehicles (AVs) to simplify tasks like goods delivery, package distribution, and traffic management. AVs encompass land, aerial, and maritime vehicles, all requiring secure data transfer to operate effectively. To address this, a cyber security approach using the Advanced Encryption Standard (AES) encrypts data into cipher text, which can only be decrypted by a secret key provided to the specific vehicle. For enhanced security, Artificial Neural Network (ANN) and K-Means Clustering along with Fuzzy Neuro Networks is applied. Additionally, steganography techniques are used to further protect data. This proposed solution was implemented using Python-based simulations in an Internet environment.

Key Words: Advanced Encryption Standard, Information Security.

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Paper ID: ICRICEIT-23-043

OPTIMIZING THE HIRING AND RECRUITMENT PROCESS USING MACHINE LEARNING

*V Harsha Vardhan[1], V Vidya Sri[2], K V N S Akshaya Kalyani[3] , Suresh Talwar [4]

[1, 2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: sureshtalwarit@smec.ac.in

ABSTRACT

In today's competitive world, it is a very complicated process to hire candidates with manual verification of resumes. This work is an experimental method for ranking of hiring resumes because manually ranking is quite a complicated job for the hiring team, as it takes more time to go through each of the candidates resumes. If the resumes are high in number then man power will also increase for the same task. To rectify these problems a new solution has been proposed. In order to make this whole hiring process more effective, an application for processing the resumes using machine learning is proposed. This work uses methods such as optimizing the candidates' performance in the preferred skill mentioned in the resume and also ranking method to display the selected candidates based on their overall performance according to the skill requirement of the company's required job position. In order to verify whether the information given by the user it will check the course completion certificate for the preferred skills given by the user. To check the details in resume, optimizing the user skills and ranking the candidates, machine learning algorithm is used. The whole idea is implemented using python language and the results are sure to make the recruitment process efficient.

Key Words: Machine Learning, Hiring, Performance of Candidates, Resume, Skills

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Paper ID: ICRICEIT-23-044

SCALABLE DEEP LEARNING TECHNIQUES FOR CATEGORIZATIONOF SATELLITE IMAGES

V Bharath Reddy [1] , K Navaneetha [2] , V Raveena [3] ,*T Suresh [4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[5]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana

*Corresponding Author

Email: sureshtalwarit@smec.ac.in

ABSTRACT

Satellite imagery serves a crucial role in diverse applications like disaster response, law enforcement, and environmental monitoring. These tasks often require manual identification of objects and structures within the images. However, due to the extensive geographic regions involved and a limited number of analysts available, there's a growing need for automation. Traditional methods of object detection and classification are proving insufficient and unreliable for addressing this challenge. This is where deep learning comes into play a collection of machine learning techniques that holds the potential to automate these tasks effectively. In particular, convolutional neural networks (CNNs), a subset of deep learning, have shown remarkable promise in understanding images. This study focuses on applying CNNs to the complex task of recognizing various objects and facilities in high-resolution, multi-spectral satellite images. The research introduces a deep learning system that takes advantage of both satellite metadata and image features to accurately classify the dataset into different categories. The implementation of this system is carried out using Python, leveraging the Keras and Tensor Flow libraries.

Key Words: Deep learning, Machine learning, Image understanding, recognition, Classification, Satellite imagery

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Paper ID: ICRICEIT-23-045

SOFTWARE DEFECT PREDICTION USING ADVANCED MACHINE LEARNING TECHNIQUES

P Ashrith Reddy[1], K.Balaji[2], K Shruthik[3] ,*M Ramesh [4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana

*Corresponding Author

Email: mrameshit@smec.ac.in

ABSTRACT

Software defect prediction provides development groups with observable outcomes while contributing to industrial results and development faults predicting defective code areas can help developers identify bugs and organize their test activities. The percentage of classification providing the proper prediction is essential for early identification. Moreover, software-defected data sets are supported and at least partially recognized due to their enormous dimension. This Problem is handled by hybridized approach that includes the PCA, random forest, naive bayes and the SVM Software Framework, which as five datasets as PC3, MW1, KC1, PC4, and CM1, are listed in software analysis using the weak simulation tool. A systematic research analysis is conducted in which parameters of confusion, precision, recall, recognition accuracy, etc. Are measured as well as compared with the prevailing schemes. The analytical analysis indicates that the proposed approach will provide more useful solutions for device defects prediction.

Key Words: Machine Learning, software Defects, Collecting Bug

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Paper ID: ICRICEIT-23-046

CAPTCHA RECOGNITION AND ANALYSIS USING CUSTOM BASED CNN MODEL–CAPTCHA SECURE

Amandeep Yadav[1] ,K Abhinav Reddy[2] ,K Aishwarya[3], *K Koteswara Rao[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kkoteswararaoit@smec.ac.in

ABSTRACT

CAPTCHAs are automated tests designed to distinguish between computers and humans, attacking programs, or other computerised agents that attempt to imitate human intel-licence. The main intent of this research is to develop a method to crack CAPTCHA using a custom based convolutional neural network (CNN) model called CAP-SECURE. The proposed model aims to distinguish or tell websites about the weaknesses and vulnerabilities of the CAPTCHAs. The CAP-SECURE model is based on sequential CNN model and it outperforms the existing CNN architecture like VGG-16 and ALEX-net. The model has the potential to solve and explore both numerical and alphanumerical CAPTCHAs. For developing an efficient model, a dataset of 200000 CAPTCHAs has been generated to train our model. In this exposition, we study CNN based deep neural network model to meet the current challenges, and provide solutions to deal with the issues regarding CAPTCHAs. The network cracking accuracy is shown to be 94.67 percent for alpha-numerical test dataset. Compared to traditional deep learning methods, the proposed custom based model has a better recognition rate and robustness.

Key Words: Deep learning, Machine learning, Captcha Recognition, Captcha Secure

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Paper ID: ICRICEIT-23-047

IMAGE FORGERY DETECTION USING CONVOLUTIONAL NEURAL NETWORKS

Thammali Vedasri[1],Kattela Karthik[2] ,Mittapally Sanjay[3],*K Radha[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kradhait@smec.ac.in

ABSTRACT

With the increasing use of digital images in various applications, the problem of image forgery has become more prevalent than ever. Earlier we used rotation and flipping, standardizing, resizing for image forgery detection. Our proposed system integrates Error Level Analysis (ELA) with deep learning techniques to provide a more accurate and reliable solution to the problem of image forgery detection. Overall, this project offers a robust and effective solution to the growing problem of image manipulation and forgery in today's visual media landscape.

Key Words: CNN algorithm, image forgery, data augmentation, accuracy

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Paper ID: ICRICEIT-23-048

MOVIE SUCCESS PREDICTION USING MACHINE LEARNING

M Bindhiya[1], M DeyDeepya[2], M Pundarikaksha [3], *G Sathish[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

***Corresponding Author**

Email: gsathishit@smec.ac.in

ABSTRACT

Movies continue to be a major source of entertainment in any country. However, this industry also incurs a lot of losses when the movie does not perform at the Box Office. Our solution will try to predict the success rate of a movie by doing predictive analysis on the various features of the movie. Our model will predict the Success, based on different attributes/ features of the movie. I.e. Movie crew (including director producer, music director), Movie plot (Storyline), Box-Office revenue, Audience and Critics reviews / ratings. Here a detailed study of machine learning algorithms such as Random Forest, Decision Tree, K-Nearest Neighbours (KNN), NLP, XG Boost Classifier and Deep Neural Network were done and were implemented on IMDB dataset for predicting Success of movies. Based on the results, XG Boost Classifier gave best accuracy.

Key Words: Movie Success, Prediction, Box Office, Performance, Predictive Analysis, Machine Learning Algorithms

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Paper ID: ICRICEIT-23-049

CREDIT CARD FRAUD DETECTION USING MACHINE LEARNING AND DEEP LEARNING TECHNIQUES

T Dinesh[1], A Akash[2], G Naveen Kumar[3], *Dr. N Krishnaiah [4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: drnkrishnaiahit@smec.ac.in

ABSTRACT

Credit card fraud has been a persistent issue since the advent of credit cards in the mid-20th century, growing in complexity with the rise of e-commerce and digital transactions. Traditional fraud detection methods relied heavily on rule-based systems and manual reviews, proving inadequate against sophisticated fraud tactics. Problem Statement are despite advancements in technology, credit card fraud remains a significant threat, with existing detection systems often failing to identify sophisticated and evolving fraud patterns. Research Motivation is the growing frequency and complexity of credit card fraud necessitating the exploration of advanced detection techniques. Machine and deep learning approaches offer the potential to significantly enhance detection accuracy and adapt to new fraud patterns, protecting consumers and financial institutions. Proposed systems leverage machine learning algorithms such as Random Forest and Support Vector Machines, along with deep learning techniques like neural networks, to detect fraudulent transactions. These models can be trained on historical transaction data to automatically classify transactions as fraudulent or legitimate in real time, thereby increasing the speed and accuracy of detection while reducing false positives and human intervention.

Key Words: Credit Card, Fraud Patterns, Random Forest, Neural networks

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Paper ID: ICRICEIT-23-050

FRAUD DETECTION IN BANKING TRANSACTIONS USING MACHINE LEARNING

V Prasanna Varshini [1], A Vishnu Reddy[2], G. Akhilesh Reddy [3],*K Radha[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kradhait@smec.ac.in

ABSTRACT

Fraud detection in banking transactions has evolved due to the rise in digital transactions and the increasing of fraudulent activities .Traditional System use a set of fixed rules to spot suspicious transactions. They analyse transaction data to find patterns that deviate from the norm.Pattern Recognition is nothing but the system looks for known fraud patterns, such as multiple transactions in a short time .This process can take time and slow down the detection. Lack of Flexibility like easily adapt to new fraud methods because the rules are fixed. As fraud techniques evolve, the system's effectiveness decreases. Problem Statement like current fraud detection systems struggle with high false positive rates and are often unable to adapt to new fraud patterns quickly. Research Motivation like the rise in online banking and digital transactions. The proposed system utilizes machine learning algorithms such as decision trees, random forests, and neural networks to analyse transaction data. It incorporates feature engineering to identify key transaction attributes and uses real-time data processing for instant fraud detection.

Key Words: Fraud Detection, Automated Systems, Rule-Based Systems, Pattern Recognition, Real-Time Processing, Fraud Pattern

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Paper ID: ICRICEIT-23-051

DETECTION OF CRIME SCENE OBJECTS USING DEEP LEARNING TECHNIQUES

S Sukanya[1], B Charan[2], K Maheshwar Reddy[3],*G Sathish[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gsathishit@smec.ac.in

ABSTRACT

The detection of crime scene objects is a crucial task in forensic analysis. Traditional System like manual inspection, experts manually analyze crime scene images, relying on experience and training. Rule-based algorithms based on predefined rules, such as edge detection and template matching. Problem statement is detecting crime scene objects accurately which is crucial for forensic analysis but challenging due to the complexity of scenes. The proposed system employs deep learning techniques, specifically convolutional neural networks (CNNs), to detect and classify objects in crime scene images. Advanced preprocessing techniques and data augmentation are used to improve model performance.

Key Words: Crime Scene Analysis, YOLO, Object Detection, Forensic Analysis

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Paper ID: ICRICEIT-23-052

ARTIFICIAL INTELLIGENCE BASED ON FAKE OR FRAUD PHONE CALLS DETECTION

S Sreeya[1], D AbhiTarun[2], K Bharath[3], *A Bhasha[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: abhashait@smec.ac.in

ABSTRACT

Detection of fraudulent phone calls has evolved from manual monitoring and simple rule-based systems to sophisticated AI-driven solutions, reflecting advancements in technology and the increasing complexity of fraud tactics with an increase advancement of technology, fraud phone calls, including spam's and malicious calls have become a major concern in telecommunication industry and causes millions of global financial losses every year. Fraudulent phone calls or scams and spasms via telephone or mobile phone have become a common threat to individuals and organizations. Artificial Intelligence (AI) and Machine Learning (ML) has emerged as powerful tools in detecting and analyzing fraud or malicious calls. This project presents an overview of AI-based fraud or spam detection and analysis techniques, along with its challenges and potential solutions. The novel fraud call detection approach is proposed that achieved high accuracy and precision. The Proposed approach was evaluated using a data set of real-world fraudulent calls. And results demonstrate that the approach achieved high accuracy in detecting malicious calls and identifying potential indicators of frauds or spam's.

Key Words: Fraud Detection, Robocall Detection, Spam Call Filtering, Voice Recognition, Speech Analysis

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Paper ID: ICRICEIT-23-053

DATA DUPLICATION REMOVAL TECHNOLOGY USING AWS SERVICES

T Tejaswini[1], Deshmukh Hamsini[2], K V Nishanth[3] ,*V Chandra Prakash[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: vchandraprakashit@smec.ac.in

ABSTRACT

Data duplication poses challenges in database management and processing. Traditional methods relied on manual review and heuristic rules, struggling with data variations. Automated solutions leverage AI and machine learning, offering efficient detection and removal. Legacy approaches like heuristic matching and database constraints were limited in scalability and handling complex scenarios. Custom scripts and batch processing addressed specific criteria but lacked flexibility. Record linkage and entity resolution in data integration managed duplicates during merging but were resource intensive. Modern data demands efficient, scalable, and accurate deduplication. AI and ML enhance detection through clustering and classification, employing fuzzy matching and similarity scoring for non-identical records. AWS integration supports real-time deduplication and scalable processing, improving operational efficiency and data quality.

Key Words: Data De duplication, AWS Integration, Operational efficiency

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Paper ID: ICRICEIT-23-054

AN IN-DEPTH HISTORICAL EXAMINATION OF NIFTY INDICES FOR STRATEGIC INVESTMENT DECISION MAKING

V Sarath [1], G Rahul [2], K Shashidhar [3],*S Veeresh Kumar[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: sveereshit@smec.ac.in

ABSTRACT

This research conducts an in-depth historical examination of NIFTY indices to extract valuable insights for strategic investment decision-making. Just as agriculture has evolved from manual crop monitoring and rudimentary weather prediction to AI-powered optimization, investment strategies can be significantly enhanced by understanding the historical trends and forces shaping market dynamics. This study analyses the evolution of various NIFTY indices, including the NIFTY 50, NIFTY Next 50, and sectoral indices, from their inception to the present day.

Key Words: NIFTY Indices (NIFTY 50, NIFTY Next 50, Sectoral Indices), Historical Analysis (Quantitative, Qualitative), Investment Strategies, Macroeconomic Factors, Stock Market Trends, India, Emerging Markets

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Paper ID: ICRICEIT-24-055

AN IMPROVED REALTIME DRIVER DROWSINESS DETECTION SYSTEM

S Harshini[1], K Karthik[2], M. Charan[3], *K Radha[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kradhait@smec.ac.in

ABSTRACT

The concept of driver drowsiness detection emerged in the late 20th century, with early systems using physical sensors to monitor driver behaviour. Traditional Systems such as manual observation such as drivers and passengers would rely on subjective observation to identify signs of drowsiness, Vehicle based warning systems, steering pattern monitoring. These methods can be intrusive, require continuous monitoring, and are prone to human error, failing to provide reliable and timely alerts to prevent accidents caused by driver fatigue. The proposed system utilizes machine learning and AI models to improve the accuracy and reliability of driver drowsiness detection. Physiological data integration such as incorporating data from wearable devices measuring heart rate and skin conductance.

Key Words: Monitoring Driver Behaviour, Warning Systems, Drowsiness Detection.

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Paper ID: ICRICEIT-24-056

SECURE QR CODE SCANNER FOR MALICIOUS URLSDETECTION USINGMACHINE LEARNING

M Nikitha[1], M Shiva Kumar[2], M Karthik[3],*M Hari Kumar[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: mharikumarit@smec.ac.in

ABSTRACT

QR codes, initially used for tracking automotive parts, have become ubiquitous in various applications, including product labelling, mobile payments, and information sharing. However, their widespread adoption has also led to increased cyber threats, necessitating secure QR code scanners to detect malicious URLs. Traditional methods, such as manual URL verification, URL filtering databases, antivirus software, user education, and browser warnings, are insufficient due to their reliance on outdated databases, manual processes, and heuristic-based detection, resulting in high false positives and negatives. The proposed system addresses these limitations by leveraging machine learning (ML) and artificial intelligence (AI) to detect malicious URLs embedded in QR codes. It involves collecting and pre-processing a large dataset of benign and malicious URLs, extracting features using natural language processing (NLP) and domain-specific characteristics like deep learning models.

Key Words: secure QR code scanners, URLs detection, safe browsing techniques.

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Paper ID: ICRICEIT-24-057

SAFETY HELMET DETECTION SYSTEM BASED ON YOLOV5

K Aarthi[1], M Dharmesh[2], M Sairam[3],* M Sadhya Rani [4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: msadhyaraniit@smec.ac.in

ABSTRACT

Safety helmet detection systems have evolved from manual inspection methods to automated solutions, utilizing computer vision and machine learning to enhance road safety. The advent of deep learning models like YOLOv5 has significantly improved the accuracy and speed of these detection systems. The existing system relies on human surveillance for enforcing helmet regulations, which is often inefficient and prone to human error. A Helmet detection system monitor motorcycles and detect whether or not the rider was wearing a helmet for example, may discriminate between shots of motorcyclists wearing helmets and images of motorcyclists not wearing helmets. The implementation of YOLO algorithm marks a significant advancement in road safety technology.

Key Words: Monitoring AI in Helmet compliance, YOLOv5 Safety Application, Traffic safety Helmet Detection.

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Paper ID: ICRICEIT-24-058

COMPUTER SCIENCE STUDENTS ACADEMIC PERFORMANCE PREDICTION USING AI & ML

K. Harini[1], R Harsha Paneedra [2], Nikhil Kumar[3,*] T Suresh [4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: sureshtalwarit@smec.ac.in

ABSTRACT

The study aims to enhance the prediction of computer science students' academic performance using AI and ML technologies for more accurate and timely insights. Traditional methods, which relied on manual analysis of grades, attendance, and teacher evaluations, were labour-intensive and prone to errors, leading to inconsistent outcomes. These methods struggled with the complexity of factors influencing student success, necessitating a shift to advanced approaches.AI and ML offer a sophisticated alternative by analysing extensive datasets, including grades, attendance, participation, and socio-economic factors, through advanced algorithms like neural networks and decision trees. This approach identifies patterns and detects at-risk students early, enabling timely interventions.

Key Words: extensive datasets, Neural network, Decision trees, Timely interventions.

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Paper ID: ICRICEIT-24-059

DeSI: DEEP FAKE SOURCE IDENTIFIER FOR SOCIAL MEDIA

B Siva Krishna[1], K Sana Anjum[2], N Vamshi Krishna[3], *Dr. B Laxmi Kantha [4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: drblaxmiitsmec.ac.in

ABSTRACT

Online social networks like Facebook and Twitter have become integral to modern communication, but they are also vulnerable to exploitation by malicious users creating fake profiles. These fake accounts can be used to deceive legitimate users, steal sensitive information, or launch cyber-attacks. Traditionally, detecting fake profiles relied on manual inspection, rule-based systems, and simple heuristics. Recognizing the limitations of these traditional systems, researchers turned to Artificial Neural Networks (ANN) to enhance detection accuracy. ANN algorithms can analyze vast datasets of user profiles, learning to differentiate between genuine and fake accounts by examining features such as Account Age, Gender, User Age, Link Description, Status Count, Friend Count, Location, Location IP, and Status. The key motivation for this research is the growing threat posed by fake profiles, which can lead to significant privacy breaches, identity theft, and even financial loss for users. By training the ANN model on a dataset collected from Facebook, the system can identify fake profiles with a high degree of accuracy, providing real-time protection for users . This research represents a critical step forward in the ongoing battle against online fraud and identity theft.

Key Words: Manual inspection, Digital Forensics, ANN

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Paper ID: ICRICEIT-24-060

AGRICULTURE ASSISTANT CHATBOT USING ARTIFICIAL NEURAL NETWORK

G Anil[1], B Nikhil[2], P Saketh Rao[3],*T Bhargavi [4]

[3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: tbhargaviit@smec.ac.in

ABSTRACT

Agriculture has relied on technology for centuries, with recent advancements integrating AI to optimize farming practices. Artificial Neural Networks (ANNs) have shown potential in improving crop yield prediction, pest detection, and resource management. Traditional systems are like Manual Crop Monitoring farmers physically inspected crops for signs of disease, pests, and nutrient deficiencies. This process was labor-intensive and time-consuming, often leading to delayed detection and intervention. Historical Weather Data Analysis: Weather predictions were based on historical weather patterns and almanacs. This method lacked precision and could not account for sudden weather changes, affecting crop planning and management.

Key Words: AI in Farming, Artificial Neural Networks (ANNs), Crop Yield Prediction, Pest Detection, Precision Agriculture.

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Paper ID: ICRICEIT-24-061

PREDICTIONS OF COLLEGE STUDENT'S MENTAL STRESS USING MACHINE LEARNING ALGORITHMS

Garishe Keerthana[1], R Sri Harsha[2], MD. Sajid Pasha[3], *A Sravani[4]

[3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: asravaniit@smec.ac.in

ABSTRACT

The mental health of college students has become a significant concern, with increasing awareness of stress and its impact on academic performance and overall well-being. Early efforts in this area used surveys and counselling sessions to identify stress levels. Traditional System Surveys and Questionnaires, Interviews and Counselling Sessions, Observational Methods Academic Performance and Attendance Records, Problem Statement: College students experience high levels of stress, but existing mental health support systems are reactive and fail to provide timely interventions. There is a need for accurate, real-time prediction models to identify and address mental stress early. Research Motivation like Machine learning algorithms offer the potential to predict mental stress with higher accuracy and timeliness. This research aims to develop predictive models to identify stress patterns and enable early interventions, thereby improving student well-being. The proposed system leverages machine learning algorithms to predict mental stress among college students based on various factors such as academic performance, social interactions, and physiological data. The system aims to provide real-time stress level predictions, allowing for early and targeted interventions..

Key Words: Mental Stress Prediction, Machine Learning Algorithms, Real-Time Interventions, Academic Performance Monitoring, Physiological Data Analysis

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Paper ID: ICRICEIT-24-062

CYBER SAVER – A MACHINE LEARNING APPROACH TO DETECTION OF CYBER BULLYING

*G Showrya Reddy[1], Abdul Mujeeb[2], S Rohit Dilip[3],*B Ganga Bhavani [4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: bgangabhavaniit@smec.ac.in

ABSTRACT

The "Cyber Saver" project aims to develop an advanced system using machine learning to detect and combat cyber bullying on social media platforms. By improving accuracy and reducing false positives, the system provides actionable insights to mitigate cyber bullying's harmful effects. Unlike traditional methods, which relied on manual reviews and basic keyword filters, often missing nuanced abuse or generating false flags, "Cyber Saver" leverages machine learning to analyze vast amounts of user-generated content. It can identify patterns and subtle cues that traditional systems overlook. Motivated by the need for more sophisticated tools to address the increasing prevalence of cyber bullying and its impact on mental health, the project seeks to create a scalable, efficient solution. By training algorithms on large datasets, "Cyber Saver" promises faster response times and more accurate detection, making online environments safer and more supportive.

Key Words: Cyber bullying, Machine Learning, Detection System, Online Safety

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Paper ID: ICRICEIT-24-063

MACHINE LEARNING BASED PREDICTING STUDENT'S GRADE

Md. Imrozkhan[1], A Saimanichandra[2], K Chakradhar[3],*S Karthikraj[4]

[1, 2, 3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: skarthikrajit@smec.ac.in

ABSTRACT

Machine learning has evolved significantly over the past decade, enabling predictive analytics in various fields, including education. Its application in predicting student grades helps in early intervention and personalized learning. Traditional system Teacher Assessments and Observations: Teachers would observe students' performance, participation, and behavior in class. They used their professional judgment to assess students' understanding and predict their future performance. Historical Performance Analysis: Past academic records and grades were used to predict future performance. Standardized Testing: Students were evaluated through standardized tests to gauge their academic abilities and predict future grades. Peer Comparisons: Comparing a student's performance with that of their peers to predict their future grades. Parental and Socioeconomic Factors: Considering the influence of parents' education level, socioeconomic status, and involvement in their children's education.

Key Words: Machine Learning, Predicting analytics, Academic records, Standardized Testing

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Paper ID: ICRICEIT-24-064

A NOVEL TECHNIQUE TO DETECT FAKE NEWS BY USING MACHINE LEARNING APPROACHES

N Bhavana[1], K Narasimha[2,*] M Ramesh[3]

[3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

***Corresponding Author**

Email: mrameshit@smec.ac.in

ABSTRACT

Fake news has proliferated with the rise of social media, misleading the public and influencing societal and political landscapes. Early detection methods relied heavily on manual verification and basic keyword analysis, which proved insufficient in handling the scale and sophistication of misinformation. Traditional System such as Manual Fact-Checking Human fact-checkers verify the authenticity of news stories by cross-referencing information with reliable sources. Editorial Oversight News organizations employ editors to review and approve content before publication. Journalistic Standards and Codes of Ethics News organizations follow established standards and ethical codes to maintain the integrity and reliability of their reporting. Public and Peer Reporting Reliance on the public and peer journalists to report discrepancies and inaccuracies in news stories. Traditional systems often employed rule-based algorithms and basic statistical methods for identifying fake news.

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Key Words: Fake News, Fact-Checking, Media Literacy, Machine Learning, Transparency.

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Paper ID: ICRICEIT-24-065

FACE MASK DETECTION USING OPENCv AND MACHINE LEARNING

L Ashlesha[1], B Manohar[2], S Shwejan Reddy[3], *G Prabakaran [4]

[3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gprabakaranit@smec.ac.in

ABSTRACT

The COVID-19 pandemic has significantly altered daily life worldwide, necessitating the widespread use of face masks to curb virus transmission. Research shows that N95 masks are 91% effective and surgical masks 68% effective in preventing infection spread (Feng et al., 2020). The objective of this research is to develop a real-time automated system for detecting face masks in public areas using Convolutional Neural Networks (CNN). The motivation for this research systems from the urgent need to mitigate the spread of COVID-19 through effective public health measures. With the limitations of manual enforcement, there is a significant opportunity to leverage machine learning to develop a scalable, efficient, and reliable system for ensuring mask compliance in public areas. By automating face mask detection, the system enhances public safety and helps control the spread of COVID-19.

Key Words: Face Mask Detection Using Open CV and Machine Learning

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Paper ID: ICRICEIT-24-066

SENTIMENT ANALYSIS ON ZOMATO REVIEWS

J Kiranmai[1], T Vamshi Krishna Goud[2], B Abishek[3] , *A Bheemraj [4]

[3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: abheemrajit@smec.ac.in

ABSTRACT

Sentiment analysis of Zomato reviews has advanced significantly with the integration of machine learning and natural language processing (NLP). Initially, sentiment analysis relied on manual review and keyword-based methods, which were labor-intensive and often inaccurate due to their inability to grasp context and subtlety in feedback. As the number of reviews surged to over 1.5 million globally, these traditional approaches became increasingly inadequate. This technological leap has transformed sentiment analysis from a basic, rudimentary process into a sophisticated, automated system capable of processing vast amounts of data efficiently. The modern objective is to derive actionable insights that help restaurants improve customer experiences, address issues swiftly, and refine marketing strategies. The shift from basic text mining to complex algorithms reflects the need for more nuanced and scalable solutions. The research focus on AI and machine learning aims to overcome the limitations of traditional methods, offering precise sentiment analysis that captures context, tone, and subtleties for more effective business responses.

Key Words: Sentiment Analysis, Reviews, Zomato Context, Feedback.

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Paper ID: ICRICEIT-24-067

TRAFFIC VIOLATION DETECTION SYSTEM- OVER SPEED, SIGNAL JUMP, NO HELMET, TRIPLE RIDE

Jagapathi Unnathi[1], Bollam Stephen[2], V Kalyan Prasad[3], *G Sathish [4]

[3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gsathishit@smec.ac.in

ABSTRACT

Traffic violations like over-speeding, signal jumping, helmetless riding, and triple rides contribute significantly to global road accidents and fatalities. Traditional methods for detecting these violations, such as manual surveillance and fixed speed cameras, are labour-intensive, error-prone, and limited in coverage. The World Health Organization reports 1.35 million annual road traffic deaths globally, with India alone seeing over 150,000 deaths in 2022 due to similar violations. To overcome the shortcomings of traditional methods, this system uses AI, including machine learning and deep learning, to automate violation detection. By leveraging real-time video feeds, CNNs, and YOLO, the system ensures accurate traffic violation detection and classification through object tracking and velocity estimation. This AI-driven approach reduces human error, increases enforcement efficiency, and improves road safety by automating traffic rule monitoring.

Key Words: Traffic violations, AI-driven system, Machine learning, Real-time video feeds, Convolutional Neural Networks (CNNs), Road safety

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Paper ID: ICRICEIT-24-068

FACE DETECTION AND RECOGNITION FOR CRIMINAL IDENTIFICATION

G Rajesh[1], D Navaneeth[2], M Bharath[3], *K Venkat Tiru Gopal Reddy[4]

[3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kvenkatreddyit@smec.ac.in

ABSTRACT

The face is a unique and crucial aspect of the human body structure that recognizes a person. This Face recognition from an image may be used to identify criminals or a video frame captured by the cameras that are installed in multiple regions. As a result, we may utilize it to track down a to make of criminal's identification. Face recognition is a biometric based technique that mathematically maps an individual's facial traits and retains the data as a face print. It generates a unique pattern for each face patterns and compares it to other images that are included in the collection. If a match is identified for the input face, the details linked with the relevant image will be displayed. This approach will reduce crime and protect public safety.

Key Words: Face Recognition, Criminal Identification, Face Mapping, Face Print, Video Frame Analysis, Image Processing, Crime Reduction, Public Safety, Camera Surveillance.

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Paper ID: ICRICEIT-24-069

RAINFALL PREDICTION USING MACHINE LEARNING BASED ENSEMBLE MODEL

Harsh Gogoriya[1], Gadapa Suchith[2], R Vamshi Krishna[3],*K Yadagiri [4]

[3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kyadagiriit@smec.ac.in

ABSTRACT

Rainfall prediction has long been a crucial aspect of meteorology, relying on statistical methods and physical models. Advancements in computing have enabled the use of machine learning techniques to enhance prediction accuracy. Traditional System like Numerical Weather Prediction (NWP) models use mathematical equations to simulate the atmosphere's behaviour. These models are based on the fundamental principles of physics, such as fluid dynamics and thermodynamics. Statistical Methods, Time Series Analysis, Synoptic Weather Charts, Radar-Based Forecasting, Satellite Imagery, Empirical Methods such as Pattern Recognition Meteorologists use empirical rules and heuristics derived from historical observations to predict rainfall. Machine learning-based ensemble models offer the potential to integrate diverse data sources and improve prediction performance. The proposed system leverages an ensemble of machine learning algorithms, combining the strengths of various models to improve overall prediction accuracy. Techniques such as Random Forests, Gradient Boosting, and Neural Networks are integrated to capture different aspects of the data. The ensemble approach aims to provide more reliable and robust rainfall predictions.

Key Words: Numerical Weather Prediction, Time Series Analysis, Random Forest Classifier

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Paper ID: ICRICEIT-24-070

CLOUD COMPUTING BASED LEARNING WEB APPLICATION THROUGH WEB SERVICES

J Haripriya[1],G Nandhini[2], T Manish[3] , *K Surya Kanthi[4]

[3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: ksuryakanthiit@smec.ac.in

ABSTRACT

The project focuses on developing a cloud computing-based learning web application using web services to enhance accessibility and scalability in education. The platform enables users to access educational content, resources, and interactive tools via the cloud, ensuring seamless integration across devices. By leveraging web services, the application facilitates data storage, content delivery, and real-time updates, offering a personalized learning experience. The cloud infrastructure ensures reliability, flexibility, and cost-efficiency, making the system adaptable for diverse educational needs, including remote learning, collaboration, and continuous updates to content and features.

Keywords: Cloud Computing, Web Services, Scalability, Remote Learning, Personalized Learning, Real-time Updates, Data Storage, Content Delivery , Cost-efficiency

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ARTIFICIAL INTELLIGENCE'S MACHINE LEARNING APPROACH

*Dr. Dileepkumar Padidem [1]

Professor, Ramireddy Subbarami Reddy Engineering College, Kavali, A.P.,524201

*Corresponding Author

Email: padidemdileep@gmail.com

ABSTRACT

In classification problem learning and decision making is at the core level of argument as well as artificial aspects. So scientists introduce machine learning which is widely used in artificial intelligence. Artificial intelligence planning systems have become an important tool for automating a wide variety of tasks. Machine Learning techniques enable a planning system to automatically acquired search control knowledge for different applications. In the field of robotics machine learning plays an important role, it helps in taking decision and increase the efficiency of the machine. Machine learning is used in much application which is the principle concept for intelligence system which assists to the ingenious introduction and advanced concepts of artificial intelligence.

Key Words: Machine Learning, Artificial Intelligence.

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Paper ID: ICRICEIT-24-072

CYBER SECURITY THREAT DETECTION MODEL USING AI TECHNOLOGY

K. Rachith Reddy[1], P Prakash[2],*G Gouthami [3]

[3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: ggouthamiit@smec.ac.in

ABSTRACT

Botnets, networks of compromised computers controlled by malicious actors, pose a significant threat to cyber security. Detecting these threats is challenging, especially when attackers use Domain Generation Algorithms (DGA) to dynamically generate domain names for command and control servers. Enhancing botnet DGA detection is crucial for identifying and mitigating cyber threats effectively. The background involves the ongoing arms race between cyber security professionals and malicious actors, with a specific focus on the evolution of DGA techniques. The history of cyber security has seen the continuous evolution of tactics and techniques employed by malicious actors. DGAs have become a prevalent method for botnets to evade detection by security systems. Early detection methods focused on static signatures, heuristics and rule-based systems, while these approaches can be effective to some extent, they fall short when dealing with novel or polymorphic DGAs that constantly evolve to evade detection. Traditional systems are lack in the adaptability and contextual understanding needed to keep up with the dynamic nature of cyber threats. The problem at hand is the enhancement of botnet DGA detection by incorporating explainable AI and open-source intelligence (OSINT) for cyber threat intelligence sharing.

Key Words: Botnets, cyber security, DGA, malicious, adaptability.

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Paper ID: ICRICEIT-24-073

CYBER ATTACK DETECTION IN SMART AGRICULTURE DATA USING MACHINE LEARNING APPROACHES

*Dr. S. V. Saboji [1] ,Suresh Talwar [2]

[1]Professor,Basaveshwar Engineering College, Bagalkot-587104

[2]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: sabojiskumar@yahoo.com

ABSTRACT

A significant amount of potentially sensitive information will be leaked from sensors put everywhere in the internet in an Internet of Things (IoT) environment. This is crucial to confirm the data's, source and identity in order to assure the veracity of such sensitive material. Practically who are speaking, the first step to a secure IoT device is IoT system identification. In this case critical or emergency scenarios, it is harmful behaviours such as providing problem of data error that is going to be make problem irreparable security problems will be stopped by using a different and the right device identification approach. According to current survey, because of their accessibility and instability, this can be first identity metrics like Internet Protocol (IP) or Media Access Control (MAC) addresses are insufficient. Such as summary, this will be crucial to take into account how to analyze sensor and packet header information to identify an IoT device. This paper can suggest a framework for device identification based on classification using combination of sensor measurement and a packet header data set. In order to provide improved security in IoT devices, various machine learning methods have been implemented to identify anomaly. Data gathered from IoT devices has been used to test the suggested technique under attack conditions.

Key Words: IoT security, Machine learning, Smart agriculture, Anomaly detection

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Paper ID: ICRICEIT-24-074

REVIEW OF DATA INTEGRITY IN CLOUD STORAGE

*Suresh Talwar[1], Dr. S V Saboji[2]

[1]AssistantProfessor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2] Professor, Basaveshwar Engineering College, Bagalkot, 587104

*Corresponding Author

Email: sureshtalwarit@smec.ac.in

ABSTRACT

In the past few years' cloud has become the powerful service provider. It provides a way to move the applications and sensitive databases to the large data centres. However there is no guarantee that the data stored in the cloud are secure or not and the contents are original or altered by any unauthorised. Many schemes have been proposed to deal with security issues in an un-trusted server. Integrity of user data in the cloud servers is one of the most important concerns of users nowadays. In this paper we presented different methodologies and protocols, which the users can use to check the correctness of their data with the simplest possible way and less overhead at the customer side. At the end comparative analysis of data integrity scheme make researcher to take further study in data integrity in cloud.

Key Words:cloud storage, integrity, Third Party Auditor (TPA).

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Paper ID: ICRICEIT-24-075

REVIEW OF AN IMPROVED UAV IDENTIFICATION AND DETECTION USING DEEP LEARNING

*Dr. S V Saboji[1], Suresh Talwar[2]

[1] Professor, Basaveshwar Engineering College, Bagalkot, 587104

[2]AssistantProfessor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: sabojiskumar@yahoo.com

ABSTRACT

Urban greenery, including trees, plays a crucial role in enhancing the livability of cities. Accurate identification and assessment of urban trees are important for urban planning, environmental conservation, and management. Traditional methods of tree identification often relied on manual inspection, which can be time-consuming and labor-intensive. By training models on extensive datasets of high-resolution UAV imagery, this research endeavors to develop a system capable of autonomously and accurately identifying and classifying urban trees. Deep learning algorithms excel at learning complex patterns and features, making them well-suited for this task. This advancement holds great promise for enhancing urban planning and environmental conservation efforts by providing a more efficient and accurate means of tree identification in urban areas

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Key Words: UAV, DLA, UA, HR

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Paper ID: ICRICEIT-24-076

AN EXPLORING REACHABILITY IN BINARY NEURAL NETWORKS WITH CONTINUOUS INPUTS USING STAR METHODS

* NSreeram [1], C Preetham [2], Dr. B Vasavi[3],B Ganga Bhavani[4]

[1]AssistantProfessor, KL University, Guntur, Andhra Pradesh –522502
[2]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[3]Associate Professor,MVSR Engineering College,Hyderabad, Telangana-501510

*Corresponding Author

Email: sriramnimmagadda@gmail.com

ABSTRACT

This study investigates the reach ability of binary neural networks (BNNs) when subjected to continuous inputs, utilizing star methods for analysis. As BNNs gain prominence in various applications, understanding their behaviour in the face of continuous variations is crucial for ensuring reliability and safety. The star method framework allows for the encapsulation of input uncertainties, providing a systematic approach to assess the reachability of neural network outputs. Through a combination of theoretical analysis and practical experimentation, this research elucidates the potential impacts of continuous inputs on BNN performance and robustness. The findings offer valuable insights for developers and researchers aiming to enhance the deployment of BNNs in real-world scenarios.

Key Words: Binary Neural Networks, Reach ability Analysis, Continuous Inputs, Star Methods, Neural Network Robustness, Input Uncertainty, Theoretical Analysis, Performance Assessment

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Paper ID: ICRICEIT-24-077

TRANSFORMING LIBRARY SERVICES AND INFORMATION MANAGEMENT: THE ROLE OF ARTIFICIAL INTELLIGENCE

*B Ganga Bhavani[1], K Surya Kanthi[2], K Venkat Reddy[3], K Koteswara Rao[4]

[1,2,3,4] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: bhavani.smec@gmail.com

ABSTRACT

The present study explores the potential of Artificial Intelligence (AI) to bring about transformation in library services and information management. The research used a thorough scale to assess the degree of artificial intelligence (AI) integration into libraries, as well as the resulting consequences for user experience and the encountered challenges. The results indicate improved effectiveness in the organisation and classification of materials, as well as increased user contentment, inside libraries that have integrated artificial intelligence technology. However, the emergence of concerns pertaining to data privacy presents considerable obstacles. This study highlights the necessity of ongoing training for library personnel and stresses the significance of ethical considerations in the incorporation of artificial intelligence. The study finishes by offering recommendations for libraries and proposing avenues for further research, emphasising the crucial impact of artificial intelligence (AI) on the evolution of library services.

Key Words: Artificial Intelligence, Library Services, Information Management, Data Privacy, User Satisfaction

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Paper ID: ICRICEIT-24-078

HUMAN-CENTERED PERSPECTIVES IN INTERACTIVE MACHINE LEARNING FOR ADVANCING AMBIENT INTELLIGENCE

*Dr. B Vasavi [1], Samatha Konda [2], M S V V Satya Narayana [3], B Ganga Bhavani [4]

[1]Associate Professor, MVSR Engineering College, Hyderabad, Telangana-501510

[2]Assistant Professor, Muffakam Jah Engineering College, Hyderabad, Telangana-500034

[3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: vasavi_it@mvsrec.edu.in

ABSTRACT

As the vision of Ambient Intelligence (AmI) becomes more feasible, the challenge of designing effective and usable human-machine interaction in this context becomes increasingly important. Interactive Machine Learning (IML) offers a set of techniques and tools to involve end-users in the machine learning process, making it possible to build more trustworthy and adaptable ambient systems. In this paper, our focus is on exploring approaches to effectively integrate and assist human users within ML-based AmI systems. Through a survey of key IML-related contributions, we identify principles for designing effective human-AI interaction in AmI applications. We apply them to the case of Opportunistic Composition, which is an approach to achieve AmI, to enhance collaboration between humans and Artificial Intelligence. Our study highlights the need for user-centered and context-aware design, and provides insights into the challenges and opportunities of integrating IML techniques into AmI systems

KeyWords: Human-Computer Interaction, User Interfaces, Machine Learning, Reinforcement Learning.

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Paper ID: ICRICEIT-24-079

DECRYPTING CRYPTOGRAPHIC HASH FUNCTIONS WITH CUBE- CONQUER TECHNIQUES

* K Surya Kanthi [1], K Venkat Reddy [2], K Koteswara Rao [3], B Ganga Bhavani[4]

[1, 2,3,4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana 500100

*Corresponding Author

Email: ksuryakanthi@smec.ac.in

ABSTRACT

Cryptographic hash functions are fundamental components of modern security protocols, ensuring data integrity and authenticity. However, the increasing sophistication of attack methods poses significant challenges to their resilience. This paper introduces a novel approach to attacking cryptographic hash functions using Cube-and-Conquer techniques, which leverage the interplay between algebraic methods and constraint solving. Cube-and-Conquer operates by partitioning the input space of the hash function into manageable subsets, referred to as "cubes." Each cube represents a fixed selection of input bits, allowing for systematic exploration of the remaining variable bits. By effectively narrowing down the input space, we can focus on specific configurations that yield more information about the underlying function. In our experiments; we applied this methodology to several established hash functions, demonstrating the practicality and efficiency of the Cube-and-Conquer approach. Our results reveal that even robust hash functions, previously considered secure, exhibit exploitable patterns when subjected to this attack vector. This paper contributes to the understanding of hash function vulnerabilities and provides a framework for developing countermeasures against sophisticated attack techniques. The insights gained from this research underscore the need for continual innovation in cryptographic design and evaluation, ensuring that security protocols remain robust in the face of evolving threats.

Key Words: Hash Function, Cube and Conquer technique, Cryptography.

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MACHINE LEARNING-BASED INTRUSION DETECTION SYSTEM FOR DDOS ATTACKS IN CLOUD COMPUTING ENVIRONMENTS

Mr. Venkata Reddy[1]

[1]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kvenkatreddyit@smec.ac.in

ABSTRACT

Cloud computing (CC) is on demand services to user requirements, it will access through a network, mainly storage and computing resources are the key features in cloud. The user sends the data manually or automated style with the help of network to data servers; it forwards to multiple data servers. CC is a base technology of iot, industry, novel artificial intelligence, thus it produces bulk of data into real world. Providing security to cloud is a challenging task. The Distributed Denial of Service (DDoS) attack is the major impact on cloud to make cloud server hanged with multiple no of requests. It leads to unavailable of the services to legitimate users by increasing bogus traffic. This scenario is simply overloading the system and utilizes the computing resources by increasing the attacker. Many authors contributed their research to propose detection and mitigation of DDoS attack. Even though there is a necessity analyze attach through real time data. Data sets are available from cloud severs. Based on the previous literatures machine learning provides flexibility to analyze the data. The objective of this project can be three-fold i) data collection and Pre-processing, ii) Classification and iii) Intrusion Detection System. For this analysis we considered NSL-KDD dataset .This dataset consists 93.32% of attacker traffic and 16.44% of normal traffic. Finally this project proposes intrusion detection system to detect and mitigate attack effectively when compare to the existing algorithms.

Key Words: Cloud Computing, Denial of Service, NSL -KDD

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Paper ID: ICRICEIT-24-081

A CLUSTERING-BASED HYBRID OPTIMIZATION APPROACH UTILIZING EVOLUTIONARY COMPUTING AND MAPREDUCE ARCHITECTURE FOR BIG DATA

*Dr.R Venkat[1], *Mr .K Venkat Tiru Gopal Reddy[2]

[1]Associate Professor, St. Peter's Engineering College, Secunderabad, Telangana – 500100

[2]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kvenkatreddyit@smec.ac.in

ABSTRACT

Big data is increasingly utilized across various sectors, including industry, finance, and healthcare, due to its ability to handle vast volumes of information. Real-world data often exists in both structured and unstructured forms, and effective organization can be achieved through clustering techniques. This paper presents an Improved Fuzzy C-Means (IFCM) clustering method, providing a precise framework for data categorization. Additionally, we highlight the Map Reduce model as a powerful approach for classifying large datasets.

In this study, we employ the Cuckoo Search Correlative Naive Bayes Classifier (CS CNB) within the Map Reduce framework to efficiently process extensive data. We further refine the process using the Gravity Search Algorithm (GSA), optimized through a modified Hitchcock Bird Gravity Search Algorithm (HBGSA) for improved constraint selection.

The proposed HBGSA method evaluates data samples based on class probabilities, resulting in more accurate classifications. Performance metrics, including Sensitivity, Specificity, and Accuracy, reveal an impressive accuracy of 85.83%, with a precision sensitivity of 78% and a specificity of 72%, thereby validating the method's efficiency.

Key Words: Correlative Naive Bayes Classifier, HBGSA_IFCM_CS_CNB, Map Reduce, GSA, BRNN

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Paper ID: ICRICEIT-24-082

AN ADVANCED FUZZY C-MEANS APPROACH FOR EFFECTIVE BIG DATA CLUSTERING

*Dr R Venkat[1], *Mr K Venkat Tiru Gopal Reddy[2]

[1]Associate Professor, St. Peter's Engineering College, Secunderabad, Telangana – 500100

[2]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kvenkatreddyit@smec.ac.in

ABSTRACT

Clustering has emerged as a robust technique for analysing the vast amounts of data generated by contemporary applications. Its primary objective is to categorize data into clusters, grouping similar objects within specific categories. However, clustering large datasets presents several challenges. While deep learning has proven to be an effective approach for big data analysis, it often requires a substantial number of samples for model training, making the process both time-consuming and costly. This challenge can be mitigated through a fuzzy approach.

In this research, we propose an Improvised Fuzzy C-Means (IFCM) method, which integrates an encoder-decoder Convolution Neural Network (CNN) with the Fuzzy C-Means (FCM) technique to enhance clustering effectiveness. The encoder-decoder CNN is employed to learn features and facilitate faster computations. To improve the traditional FCM algorithm, we introduce a novel function that measures the distance between the cluster centre and individual instances, thereby refining the clustering process. We further enhance the model's performance by incorporating an Optimized Encoder-Decoder (OED) CNN for improved efficiency and speed.

Key Words: Fuzzy C-Means (FCM), Convolution Neural Network (CNN), improvised Fuzzy C-Means (IFCM).

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TRAIN DELAY PREDICTION USING MACHINE LEARNING

* Dr. Ramesh Babu Pittala [1],Mohammed Kaif[2], Pilli Suneetha [3], K Surya Kanthi[4]

[1]Associate Professor, Anurag University, Hyderabad, Telangana – 500088

[2]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[3]S R Kr Engineering College, Bhimavaram,AP,534204

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email:prameshbabu526@gmail.com

ABSTRACT

Transport systems are critical pieces of infrastructure and they have substantially increased in size in many countries worldwide. This includes rail transport systems that have evolved significantly, including to provide long distance travel services. Passenger train delay significantly influences riders' decision to choose rail transport as their mode choice. Poor on-time performance can impact passenger trust and their satisfaction, and it may result in a shift to other modes of transport, especially private vehicles and air transport. Service disruption is a root cause of lower rail punctuality and customer satisfaction. Major service disruptions result from various conditions or factors such as accidents, problems in train operation, malfunctioning or damaged equipment, routine maintenance, construction, passenger boarding or alighting, and even extreme weather conditions. Train delay can also negatively affect connecting trains and passengers' journeys or activities. Thus, delay estimates or predictions can help train operators develop better plans to manage, reschedule, or adjust the timetable of the current and consecutive trains more effectively, as well as to inform passengers in advance so they themselves can adjust their travel plans in time. In light of these problems, the main objective is to model passenger train delay prediction based on three Machine Learning.

Key Words: Machine Learning, Performance, Predictions.

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Paper ID: ICRICEIT-24-084

DRIVER ACTIVITY RECOGNITION BY DRIVER PROFILES USING DEEP LEARNING

*Dr. Shesagiri Taminana[1], Kota Aswitha[2], Yellanki Saideep[3], K. Surya Kanthi[4]

[1]Associate Professor, Joginpally B. R. Engineering College, Hyderabad, Telangana-500085

[2,3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: tsgiri32@gmail.com

ABSTRACT

This study presents a novel approach to driver activity recognition utilizing deep learning techniques tailored to diverse driver profiles. With the increasing integration of advanced driver-assistance systems (ADAS) in vehicles, the accurate detection of driver behaviors is critical for enhancing road safety and optimizing user experience. We collected a comprehensive dataset from various drivers, capturing a wide range of activities, including normal driving, distraction, aggressive manoeuvres, and periods of inactivity. Leveraging deep neural networks, particularly Long Short-Term Memory (LSTM) and Convolutional Neural Networks (CNN), we developed a robust framework that analyzes sensor data and video inputs to recognize and classify driving activities. Our model incorporates feature extraction techniques to identify key behavioural patterns across different driver demographics, ensuring generalizability and reducing bias. Extensive evaluation metrics, including accuracy, F1 score, and confusion matrices, demonstrate the model's effectiveness in real-time scenarios. The findings indicate significant potential for improving safety systems, informing insurance models, and enhancing driver training programs. This research underscores the importance of considering diverse driver profiles in developing intelligent transportation solutions.

Key Words: Convolutional Neural Networks, Deep neural networks, Metric

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Paper ID: ICRICEIT-24-085

THE ROAD OF AGI: CHALLENGES POSED BY NEURAL NETWORK- BASED SYSTEMS

*K Koteswara Rao[1],B Ganga Bhavani[2],K Surya Kanthi [3], K Venkat Reddy [4]

[1,2,3,4] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana-500100

*Corresponding Author

Email: kkoteswararaoit@smec.ac.in

ABSTRACT

The pursuit of Artificial General Intelligence (AGI) represents a transformative goal in artificial intelligence research, aiming to create systems that can learn, reason, and adapt like humans. While neural network-based systems have achieved impressive feats in narrow AI domains, this paper argues that they pose significant challenges on the road to AGI. We critically examine the limitations inherent in these architectures and their implications for achieving true general intelligence. One of the primary challenges is the rigidity of neural networks. These models excel when trained on large, curated datasets but often struggle to generalize their learning to novel situations. Unlike human cognition, which can apply knowledge across diverse contexts, neural networks typically require extensive retraining or fine-tuning to adapt to even slightly different tasks. This lack of adaptability presents a substantial obstacle to developing AGI, which necessitates the ability to learn and reason in fluid and dynamic environments. Additionally, the computational demands of neural network training further complicate their role in AGI development. Training state-of-the-art models requires vast amounts of computational power and energy, raising questions about the sustainability of this approach as the demand for more sophisticated AI grows. The resources needed for such systems can limit accessibility and slow progress in AGI research. In conclusion, while neural networks have made significant contributions to AI, their limitations highlight the challenges that lie ahead in the quest for AGI. Acknowledging these challenges and exploring diverse methodologies is essential for advancing toward a future where intelligent systems can operate with the flexibility, transparency, and depth of human cognition.

Key Words: AGI, Neural Networks, AI.

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Paper ID: ICRICEIT-24-086

END-TO-END DATA PIPELINE AND PREDICTIVE MODELLING FOR INSURANCE ANALYTICS

* D Sunil Kumar [1], Sidha Meghana [2], Vittoli Sruthi [3], K Koteswara Rao[4]

[*1] Assistant Professor, KITS Akshar, Guntur, Andhra Pradesh-522019

[2,3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: sunil1dasari@gmail.com

ABSTRACT

Insurance telematics is an emerging and exciting field. It combines the advancements in GPS tracking, computational analytics, data processing, and machine learning into a useful tool to help insurance companies make the best product for their consumers. This is why National Indemnity looked to implement a telematics portion to their business processes of underwriting insurance policies and sponsored a School of Computing Senior Design project. In this report, we will first review existing solutions that been used to solve problems and sub problems like that we are given in this project. We then propose designs for the data pipeline and machine learning model that will be optimal in providing predictions on the risk level of drivers. National Indemnity will be able to use this project to leverage predictions to optimize insurance rates to more accurately account for risk among the insured.

Key Words: Computer Science, Machine Learning, Insurance, Telematics, Data Processing, Data Analytics

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Paper ID: ICRICEIT-24-087

A PRIVACY PROTECTION STRATEGY IN UNGUIDED SENSOR NETWORKS

*A Bhasha[1], Dr. N Krishnaiah[2], Dr B Laxmikantha[3], K Radha[4]
[2]Professor,St. Martin's Engineering College, Secunderabad, Telangana – 500100
[1, 3, 4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100
*Corresponding Author
Email: abhashait@smec.ac.in

ABSTRACT

Computing and communication have advanced dramatically as a result of recent developments in wireless sensor networks (WSNs). Security has not yet received the same priority to match these changes.In this study, we concentrate on the WSNs' source location secrecy problem,a current security development area, and provide a privacy and security technique in WSNs. This approach considers more powerful opponents who can evaluate the situation at the origin using a hidden Markov model. To deal with this sort of opponent, fake sources and phantom nodes are used to divert the transmission path by mimicking the actions of the origin. To choose the candidate for the next step, each access point's weight is employed as criteria. Moreover, transmitter and receiver modes are intended to send original packets. According to the computation results, the suggested privacy protection strategy increases safety while using less energy.

Key Words: Wireless sensor network, Security, Machine Learning

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BIG DATA ANALYTICS:CHALLENGES, ISSUES AND TOOLS

*A Bhasha [1], A Bheem raj[2], K Yadagiri[3], V Chandraprakash

[1,2,3,4] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: abhashait@smec.ac.in

ABSTRACT

A huge repository of terabytes of data is generated each day from modern information systems and digital technologies such as Internet of Things and cloud computing. Analysis of these massive data requires a lot of efforts at multiple levels to extract knowledge for decision making. Therefore, big data analysis is a current area of research and development. The basic objective of this paper is to explore the potential impact of big data challenges, open research issues, and various tools associated with it. As a result, this article provides a plat form to explore big data at numerous stages. Additionally, it opens new horizon for researchers to develop the solution, based on the challenges and open research issues.

Key Words: Big data analytics, Hadoop, Massive data, structured data, Unstructured Data

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Paper ID: ICRICEIT-24-089

PREDICTING THE PERFORMANCE OF BIG DATA APPLICATIONS IN THE CLOUD

*A Bhasha [1], Dr. B Laxmi Kantha[2], K Yadagiri[3], A Sravani[4]

[1 ,3,4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2]Associate Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*****Corresponding Author

Email: abhashait@smec.ac.in

ABSTRACT

Big data analytics have become widespread as a means to extract knowledge from large datasets. Such applications are often characterized by highly heterogeneous and irregular data access patterns, challenging existing software and hardware infrastructures to meet their dynamic resource demands. The cloud computing paradigm, in turn, offers a natural hosting solution to such applications as it provides flexibility and elasticity, adapting the allocated resources in response to the application's current needs. In this article, we tackle this challenge by exploring three modelling approaches for predicting the performance of big data applications running on the cloud. We evaluate two queuing-based analytical models and a novel fast ad-hoc simulator in various scenarios based on different applications and infrastructure setups. The considered approaches are compared in terms of prediction accuracy and execution time. Our results indicate that our two best approaches can predict average application execution times with only up to a 7% relative error, on average. Moreover, both of them run very fast (requiring at least two orders of magnitude lower execution time than widely used tools while providing slightly better accuracy), being practical for online prediction.

Key Words: Performance Prediction, Apache Spark, Parallel Computing, Big Data, Analytical and Simulation Models.

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GENERATINGSOLUTIONSTOSCIENTIFICPROBLEMSWITHLIMITEDKNOWLEDGEBY MAXIMUM ENTROPY PRINCIPLE

*A Bheemraj[1], V Chandraprakash[2],ABhasha[3], G.Sathish[4]

[1, 2,3,4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*****Corresponding Author

Email: abheemrajit@smec.ac.in

ABSTRACT

Maximum entropy principle (MEP) offers an effective and unbiased approach to inferring unknown probability distributions when faced with incomplete information, while neural networks provide the flexibility to learn complex distributions from data.Thispaperpro- poses a novel neural network architecture, the MEP-Net, which combines the MEP with neural networks to generate probability distributions from moment constraints. We also provide a comprehensive overview of the fundamentals of the maximum entropy principle, its mathematical formulations, and a rigorous justification for its applicability for non-equilibrium systems based on the large deviations principle. Through fruitful numerical experiments, we demonstrate that the MEP-Net can be particularly useful in modelling the evolution of probability distributions in biochemical reaction networks and in generating complex distributions from data.

Key Words: Maximum entropy principle, Neural networks, Probability distribution Reconstruction, Binomial distributions, Variational approach.

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HARNESSING CLOUD COMPUTING TO ENHANCE E-LEARNING EXPERIENCES

*A Bheem Raj[1], Dr. B Laxmi Kantha[2], G Sathish[3], A Bhasha[4]

[2]Associate Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[1,3, 4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: abheemrajit@smec.ac.in

ABSTRACT

As an aid in the teaching-learning process, online communications systems are used to facilitate e-learning, a form of virtualized computing and distant learning. The rise of E-learning platforms emerged drastically in the past two years. Data mining for education information processing uses facts generated from internet databases to enhance the educational learning paradigm for educational purposes when the learning process is computerized. Cloud computing is a suitable platform for supporting e-learning solutions. It can be automatically altered by providing a scalable solution for transforming computer resource consumption in the long run. It also makes things simpler to use data mining techniques in a distributed environment when interacting with massive e-learning datasets. A summary of the current state of cloud computing is provided in the study and examples of infrastructure explicitly designed for such a system. In addition, it also discusses examples of cloud computing and e-learning methodologies.

Key Words: E-Learning, Cloud Computing, Virtual Learning, SaaS, PaaS, IaaS.

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Paper ID: ICRICEIT-24-092

ANALYZING REACH ABILITY IN BINARY NEURAL NETWORKS WITH CONTINUOUS INPUTS USING STAR METHODS

N Sreeram[1], Dr. B. Vasavi[2], C Preetham[3],* A Bheem Raj[4]

[1]AssistantProfessor, KL University, Guntur, Andhra Pradesh –522502

[3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2]Associate Professor, MVSR Engineering College, Hyderabad, Telangana-501510

[4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana 500100

*Corresponding Author

Email: abheemrajit@smec.ac.in

ABSTRACT

This study investigates the reachability of binary neural networks (BNNs) when subjected to continuous inputs, utilizing star methods for analysis. As BNNs gain prominence in various applications, understanding their behaviour in the face of continuous variations is crucial for ensuring reliability and safety. The star method framework allows for the encapsulation of input uncertainties, providing a systematic approach to assess the reachability of neural network outputs. Through a combination of theoretical analysis and practical experimentation, this research elucidates the potential impacts of continuous inputs on BNN performance and robustness. The findings offer valuable insights for developers and researchers aiming to enhance the deployment of BNNs in real-world scenarios.

Key Words: Binary Neural Networks, Reachability Analysis, Continuous Inputs, Star Methods, Neural Network Robustness, Input Uncertainty, Theoretical Analysis, Performance Assessment.

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Paper ID: ICRICEIT-24-093

LEVERAGING CLOUD COMPUTING TO ENHANCE E-LEARNING EXPERIENCES

*S Veeresh Kumar[1], T Bhargavi[2], V Chandraprakash[3], G Sravan Kumar[4]
[1, 2, 3]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana– 500100
[4]Assistant Professor, CVR Engineering College,HyderabadTelangana – 501510
*Corresponding Author

Email: sveereshit@smec.ac.in

ABSTRACT

Cloud computing has revolutionized various sectors, including education, by providing scalable, cost-effective, and efficient solutions for delivering services. This paper explores the integration of cloud computing technologies to advance the e-learning process. It highlights how cloud-based platforms address traditional e-learning challenges, such as limited accessibility, insufficient storage, and high operational costs. By leveraging cloud resources, educational institutions can offer learners flexible access to vast learning materials, collaborative tools, and adaptive learning environments from any location and device. Furthermore, the paper discusses the benefits of cloud computing in fostering innovation, enhancing interactivity, and enabling personalized learning pathways. Key challenges, including data security, privacy concerns, and the digital divide, are also examined, alongside strategies to mitigate them. The findings underscore the transformative potential of cloud computing in reshaping the e-learning landscape to better meet the needs of modern learners.

Key Words: Cloud Computing, Security

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SECURE AND SCALABLE MEDIA SHARING WITH PRIVACY PROTECTION AND DEDUPLICATION IN CLOUD COMPUTING

*J Sudheer Kumar[1], S Veeresh Kumar[2], T Bhargavi[3], A Sravani[4]

[1] Assistant Professor, Department of CSE, TKR Engineering College –Hyderabad

[2, 3, 4] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: jsudheer559@gmail.com

ABSTRACT

With the aim to save cloud storage space, safe deduplication algorithms have been developed. We will begin with AES encryption algorithm; it encrypts the messages using a message-derived key. In the result, we found out that identical plaintexts generate similar cipher texts. AES encryption algorithm encompasses convergent encryption and provides precise security definitions, was proposed. Cloud computing is the advancement of sharing very large amounts of data via network. There are multiple approaches available for providing data security in the cloud storage space. Whereas present approaches are more closely tied to the cipher text. So, we are suggesting a cloud-based data collection, sharing, and restricted dissemination plan that will preserve multi-owner privacy, in this paper. In this, the database owner will be able to securely share confidential data with a group of clients through the cloud.

Keywords: AES Encryption, cloud computing

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SMART FRUIT QUALITY EVALUATION USING AI ALGORITHMS

G Sravan Kumar[1], *S Veeresh Kumar[2], V Chandraprakash[3], A Bhasha[4]

[1] Assistant Professor, CVR Engineering College ,Hyderabad , Telangana – 501510.

[2, 3, 4] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: sveereshit@smec.ac.in

ABSTRACT

Fruit quality classification in the consumer market has become a considerable burden following the decrease in the young adult population engaged in agriculture in Taiwan owing toits labour-intensiveness. We propose a system to identify the external quality of fruit, chutilizes a camera as an image sensor and an artificial intelligence algorithm as a classifier. This application is suitable for real operating environments. Fruits are mainly detected by the "youonly look once" (YOLO)-V3 algorithm, with the designated fruit continuously tracked using the characteristics of the image, such as size, height, width, etc., and the quality of fruit is detected during the tracking process. Finally, the switching gap of the application distinguishes fruits of different quality. The proposed application detects round fruit such as apples, oranges, and lemons using our newly developed process. We also provide a graphical user interface to control and collect data, evaluate models, and monitor the entire system operation to improve the efficiency of the proposed application. The experimental results show that the proposed application achieves an accuracy rate of upto88% after testing on5000fruit images.

Key Words: YOLO, Artificial Intelligence

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Paper ID: ICRICEIT-24-096

DATA PRIVACY CHALLENGES IN CLOUD COMPUTING THROUGH DECENTRALIZED ANDADDRESSING SECURITY SOLUTIONS

*V.Chandraprakash [1], Vrithika[2], M Hansini Reddy[3]

[1]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2, 3] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: vchandraprakashit@smec.ac.in

ABSTRACT

There are a variety of security concerns around cloud computing infrastructure technology. Some of these include infrastructure security against threats, data privacy, integrity, and infrastructure stability. In modern cloud computing, there are two models that cloud computing infrastructures follow: centralized cloud computing and decentralized cloud computing. Centralized cloud computing is susceptible to outages, data breaches, and other security threats. Decentralized cloud computing is more resilient to outages due to geo redundancy technology, and data is better protected by encryption through Reid Solomon erasure coding.

Key Words: Security Practices, Data Integrity, Decentralized Cloud Computing, Block chain, Geo-Redundancy, Reed Solomon Erasure Coding.

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Paper ID: ICRICEIT-24-097

DATA MINING TECHNIQUES AND APPLICATIONS

*V Chandraprakash[1], Dr. P V Kumar[2], S Srinivas[3], K Anjaneulu[4]

[1] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2]Professor, Department of CSE, Osmania Univesrsity - HyderabadTelangana – 500007

[3,4]Assistant Professor, SICET Engineering College - Hyderabad Telangana – 501510

*Corresponding Author

Email: vchandraprakashit@smec.ac.in

ABSTRACT

Data mining is the process of extracting hidden and useful patterns and information from data. Data mining is a new technology that helps businesses to predict future trends and behaviours, allowing them to make proactive, knowledge driven decisions. The aim of this paper is to show the process of data mining and how it can help decision makers to make better decisions. Practically, data mining is really useful for any organization which has huge amount of data. Data mining help regular databases to perform faster. They also help to increase the profit, because of the correct decisions made with the help of data mining. This paper shows the various steps performed during the process of data mining and how it can be used by various industries to get better answers from huge amount of data.

Key Words: Data Mining, regression, Time series, prediction, association.

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TOP 5 CHALLENGING PROBLEMS IN DATA MINING RESEARCH

*V.Chandraprakash [1], Dr. P V Kumar [2], V Pavani [3], K Anjaneulu [4]

[1] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2]Professor, Department of CSE,Osmania Univesrsity ,Hyderabad, Telangana – 500007

[3]Assistant Professor, TKR Engineering College,Hyderabad , Telangana – 500097

[4] Assistant Professor, Department of CSE, KMIT College ,Hyderabad, Telangana – 500029

*Corresponding Author

Email: vchandraprakashit@smec.ac.in

ABSTRACT

We took an initiative to identify 10 challenging problems in data mining research, by consulting some of the most active researchers in data mining and machine learning for their opinions on what are considered important and worthy topics for future research in data mining. We hope their insights will inspire new research efforts, and give young researchers a high-level guideline as to where the hot problems are located in data mining. Due to the limited amount of time, we were only able to send out our survey requests to the organizers of the IEEE ICDM and ACM KDD conferences, and we received an overwhelming response. We are very grateful for the contributions provided by these researchers despite their busy schedules. This short article serves to summarize the 10 most challenging problems of the 14 responses we have received from this survey. The order of the listing does not reflect their level of importance.

Key Words: Data mining, Machine learning, knowledge discovery.

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Paper ID: ICRICEIT-24-099

HIGH UTILITY SEQUENTIAL PATTERN MINING USING INTELLIGENT TECHNIQUE

Boga Vaishnavi [1], *Gopari Gouthami [2], Gopari Prasanna [3], Suram Navya Sri [4]

[1]UG Student,Vignan S Institute of Management and Technology for Women, Hyderabad, Telangana -501301

[2]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[3]UG Student, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]UG Student,Narsimha Reddy Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: ggouthamiit@smec.ac.in

ABSTRACT

Products which are there in their basic form is informative, but it can also be a huge task to go through many number of products. It is a huge task to go through many number of products as it may contain many repeated suggestions for a product. In the System which is proposed, utility mining with the item set shares a framework which may be a tough task as there is no anti-monotonicity property that holds with the interesting measure. The novelties lie in a high utility pattern growth way, a look ahead strategy, and a linear data structure. Concretely, our pattern growth approach is by searching a reverse set enumeration tree and to use the prune search space by the method of utility upper bounding .In the part that is modified is our Implementation. First we will create web site portal for shopping. User register the E-mail id, interest etc .Admin work is added the products and quantity. Once user login the website and purchase the products means automatically notification is goes to group members based on male or female through mail. Recommendation process is also done this project.

Key Words: Anti Monotonicity, Data structure, Enormous amount, Enumeration, Raw Form, Recommendation

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VIDEO CLASSIFICATION WITH CONVOLUTIONAL NEURAL NETWORKS

Boga Vaishnavi [1], *Gopari Gouthami [2], Gopari Prasanna [3], B. Rahul kumar [4]

[1]UG Student VignanS Institute of Management and Technology for Women, Ghatkesar, Telangana -501301

[2]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[3, 4] UG Student, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: ggouthamiit@smec.ac.in

ABSTRACT

Convolutional Neural Networks (CNNs) have been established as a powerful class of models for image recognition problems. Encouraged by these results, we pro-vide an extensive empirical evaluation of CNNs on large- scale video classification using a new dataset of 1 million YouTube videos belonging to 487 classes. We study multiple approaches for extending the connectivity of a CNN in time domain to take advantage of local spatial-temporal information and suggest a multi resolution, for related architecture as a promising way of speeding up the training. Our best spatio-temporal networks display significant performance improvements compared to strong feature-based baselines (55.3% to 63.9%), but only a surprisingly modest improvement compared to single-frame models (59.3% to 60.9%).We further study the generalization performance of our best model by retraining the top layers on the UCF- 101 Action Recognition dataset and observe significant performance improvements compared to theUCF-101 baseline model (63.3% up from 43.9%).

Key Words: Convolutional Neural Networks, Data set

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MINING CO-OCCURRENCE ITEMS WITH SEQUENTIAL PATTERN

Boga Vaishnavi [1], Gopari Gouthami [2], Gopari Prasanna [3], Suram Navya Sri [4]

[1]UG Student Vignan S Institute of Management and Technology for Women, Ghatkesar, Telangana -501301

[2]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[3]UG Student, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4]UG Student Narsimha Reddy Engineering College, Maisammaguda, Secunderabad, Telangana – 500100

*Corresponding Author

Email: ggouthamiit@smec.ac.in

ABSTRACT

Frequent sequential pattern mining has become one of the most important tasks in data mining. It has many applications, such as sequential analysis, classification, and prediction. How to generate candidates and how to control the combinatorial explosive number of intermediate sub sequences are the most difficult problems. Intelligent systems such as recommender systems, expert systems, and business intelligence systems use only a few patterns, namely those that satisfy a number of defined conditions. Challenges include the mining of patterns, top-rank-k patterns, closed patterns, and maximal patterns. In many cases, end users need to find item sets that occur with a sequential pattern. Therefore, this paper proposes approaches for mining co-occurrence items usually found with a sequential pattern. The Vertical Approach Mining (VAM) algorithm is based on vertical database scanning. The Vertical with Index Approach Mining (VIAM) algorithm is based on a vertical database with index scanning. VAM and VIAM use pruning strategies to reduce the search space, thus improving performance. VAM and VIAM are especially effective in mining the co-occurrence items of a long input pattern. The three algorithms were evaluated using real-world databases.

Key words: Co-occurrence sequential mining, Sequential pattern mining

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A MODEL OF DISTRIBUTED MICRO GRIDS OF AN ENERGY INTERNET FRAMEWORK

* M. Harikumar [1]

[1]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: mharikumarit@smec.ac.in

ABSTRACT

The intermittent nature of distributed renewable energy sources and varying patterns of end-user loads in micro grids necessitate the manufacturers to accommodate unforeseen and expected fluctuations in energy consumption and production. Lack of accurate load forecasting may result in ineffective harnessing and storage of renewable energy and complicates energy trading and dynamic pricing. Existing literature on load forecasting of micro grids is limited to single micro grids, and the possibility of inter-micro grid communication is not addressed sufficiently. This study explores the enhancement of load fore-casting in an Energy Internet (EI) framework among multiple interconnected micro grids. A novel approach is proposed which integrates k-means clustering with Support Vector Regression to forecast the load in the EI. We also investigate the influence of the communication network of the EI in improving short-term load forecasting

Key Words: STLF, SVR, EI.

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Paper ID: ICRICEIT-24-103

ENHANCING AINE(ARTIFICIAL IMMUNE NETWORK) AND VERTEBRATE IMMUNE SYSTEM IN CYBER SECURITY

*M.Harikumar [1]

[1]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: mharikumarit@smec.ac.in

ABSTRACT

The main goal of the paper is to examine and to improve the anomaly detection function of artificial immune systems, specifically the negative selection algorithm and other self/non-self-recognition techniques. This research investigates different representation schemes for the negative selection and proposes new detector generation algorithms suitable for such representations. Accordingly, different representations are explored: hyper-rectangles (which can be interpreted as rules), fuzzy rules, and hyper-spheres. Four different detector generation algorithms are proposed: Negative Selection with Detection Rules (NSDR, an evolutionary algorithm to generate hypercube detectors), Negative Selection with Fuzzy Detection Rules (NSFDR, an evolutionary algorithm to generate fuzzy-rule detectors), Real-valued Negative Selection (RNS, a heuristic algorithm to generate hyper-spherical detectors), and Randomized Real-valued Negative Selection (RRNS, an algorithm for generating hyper-spherical detectors based on Monte Carlo methods). Also, a hybrid immune learning algorithm, which combines RNS (or RRNS) and classification algorithms is developed. This algorithm allows the application of a supervised learning technique even when samples from only one class (normal) are available. The most relevant advantages include improved scalability, more expressiveness that allows the extraction of high-level domain knowledge, non-crisp distinction between normal and abnormal, and better performance in anomaly detection.

Key Words: Artificial Immune Systems (AIS), Negative Selection with Detection Rule.

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METHODS OF ARTIFICIAL INTELLIGENCE IN INFRASTRUCTURE SYSTEM

*M.Harikumar [1]
[1]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100
*Corresponding Author
Email: mharikumarit@smec.ac.in

ABSTRACT

The Artificial Intelligence (AI) revolution offers significant opportunities to capitalise on the growth of digitalisation and has the potential to enable the 'system of systems' approach required in increasingly complex infrastructure systems. This paper reviews the extent to which research in economic infrastructure sectors has engaged with fields of AI, to investigate the specific AI methods chosen and the purposes to which they have been applied both within and across sectors. Machine learning is found to dominate the research in this field, with methods such as artificial neural networks, support vector machines, and random forests among the most popular. The automated reasoning technique of fuzzy logic has also seen widespread use, due to its ability to incorporate uncertainties in input variables. Across the infrastructure sectors of energy, water and wastewater, transport, and telecommunications, the main purposes to which AI has been applied are network provision, forecasting, routing, maintenance and security, and network quality management. The data-driven nature of AI offers significant flexibility, and work has been conducted across a range of network sizes and at different temporal and geographic scales. However, there remains a lack of integration of planning and policy concerns, such as stakeholder engagement and quantitative feasibility assessment, and the majority of research focuses on a specific type of infrastructure, with an absence of work beyond individual economic sectors. To enable solutions to be implemented into real-world infrastructure systems, research will need to move away from a siloed perspective and adopt a more interdisciplinary perspective that considers the increasing interconnectedness of these systems.

Key Words: Machine learning, deep learning, AI method, Neural network.

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Paper ID: ICRICEIT-24-105

ENERGY-EFFICIENT USER ASSOCIATION STRATEGIES FOR DISCONTINUOUS RECEPTION IN 5G HETEROGENEOUS NETWORKS

*K.Neelima[1]

Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: virachithneelima@gmail.com

ABSTRACT

In 5G Heterogeneous Networks (Het Nets), the surge in user connections and diverse applications leads to significant data traffic increases, causing congestion at both co-tier and inter-tier levels. This congestion not only affects user equipment (UE) power efficiency, especially at cell edges, but also complicates Quality of Service (QoS) support. This paper introduces a novel heuristic scheme designed to optimize load balancing among Base Stations (BSs) while enhancing power efficiency and ensuring QoS for UEs. We define performance indicators into two categories: User Performance Parameters (UPP), which include DRX power savings, packet drop rates, and end-to-end delays, and Network Performance Parameters (NPP), such as overall throughput. To validate our approach, we develop an analytical model based on a two-dimensional continuous-time Markov chain (2D-CTMC) and semi-Markov processes, along with a simulation environment. The results demonstrate that our proposed scheme significantly improves both user experience and network performance metrics, effectively addressing the challenges posed by increased data traffic in 5G Het Nets.

Key Words: Heterogeneous Network Discontinuous Reception/Transmission, load balancing, Quality of Service , continuous-time Markov chain, semi-Markov.

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Paper ID: ICRICEIT-24-106

SMART INTRANET SECURITY: BEHAVIORAL ATTACK DETECTION USING MACHINE LEARNING

*Kotoju Rajitha[1] and Kotoju Neelima[2]

Assistant Professor, Mahatma Gandhi Institute of Technology (MGIT), Gandipet, Hyderabad, Telangana 500075

Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: charuk.rajitha@gmail.com

ABSTRACT

In the rapidly evolving landscape of cyber security, traditional defences are often inadequate against sophisticated threats. This paper presents a novel approach to intranet security through behavioural attack detection using machine learning techniques. By analysing user and entity behaviour within an organization's network, we develop a system that identifies anomalous patterns indicative of potential security breaches. Leveraging supervised and unsupervised learning algorithms, our model is trained on diverse datasets that simulate both normal and malicious activities. The results demonstrate a significant improvement in detection accuracy and response times compared to conventional methods. This approach not only enhances real-time threat identification but also minimizes false positives, thereby allowing security teams to focus on genuine threats. Ultimately, our findings underscore the efficacy of machine learning in strengthening intranet security frameworks and provide a foundation for future research in adaptive cyber security solutions.

Key Words: Cyber security, intranet security, Machine Learning (ML)

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Paper ID: ICRICEIT-24-107

LOW-RESOURCE IMAGE ENCRYPTION ALGORITHM BASED ON ADAPTIVE KEY GENERATION

*Papanna Narendher Reddy[1] and Kotoju Neelima[2]

Assistant Professor, Mahatma Gandhi Institute of Technology (MGIT), Hyderabad, Telangana 500075

Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: panduamu@gmail.com

ABSTRACT

In recent years, the proliferation of digital imagery and data sharing across resource-constrained devices has heightened the need for efficient, secure image encryption techniques. This paper proposes a low-resource image encryption algorithm based on adaptive key generation, which provides strong encryption while minimizing computational and memory demands. The proposed method leverages an adaptive key generation approach that dynamically adjusts to the image content and device constraints, producing encryption keys tailored to each image's unique features. This adaptability enhances security while optimizing performance, making the algorithm well-suited for devices with limited resources, such as IoT devices, mobile devices, and embedded systems. Experimental results demonstrate that the algorithm provides robust encryption and resistance to common attacks with low computational complexity, making it a viable solution for secure image transmission on resource-constrained platforms.

Key Words: Low-resource encryption, Image encryption, Adaptive key generation.

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Paper ID: ICRICEIT-24-108

OVERCOMING I/O VIRTUALIZATION BOTTLENECKS IN CLOUD COMPUTING TODAY

*K Radha[1], Dr.B Laxmi Kantha[2], G Sathish[3], A Bhasha[4]

[1, 3, 4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2]Associate Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*****Corresponding Author

Email: kradhait@smec.ac.in

ABSTRACT

Cloud computing is gaining popularity as a way to virtualize the data center and increase flexibility in the use of computation resources. This type of system is best exemplified by Amazon's Elastic Compute Cloud and related products. Recently, a new open-source framework called Eucalyptus has been released that allows users to create private cloud computing grids that are API-compatible with the existing Amazon standards. Eucalyptus leverages existing virtualization technology (the KVM or Xen hypervisors) and popular Linux distributions. Through the use of automated scripts provided with Ubuntu, a private cloud can be installed, from scratch, in under 30 minutes. Here, Eucalyptus is tested using I/O intensive applications in order to determine if its performance is as good as its ease-of-use. Unfortunately, limitations in commodity I/O virtualization technology restrict the out-of-the-box storage bandwidth to 51% and 77% of a non-virtualized disk for writes and reads, respectively. Similarly, out-of-the-box network bandwidth to another host is only 71% and 45% of non-virtualized performance for transmit and receive workloads, respectively.

Key Words: I/O Virtualization, Cloud Computing, Eucalyptus, Storage Performance, Network Performance.

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Paper ID: ICRICEIT-24-109

DATA MINING SYSTEM AND APPLICATIONS: A REVIEW

*K Radha[1], Dr. B LaxmiKantha[2]

[1]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2]Associate Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kradhait@smec.ac.in

ABSTRACT

In the Information Technology era information plays vital role in every sphere of the human life. It is very important to gather data from different data sources, store and maintain the data, generate information, generate knowledge and disseminate data, information and knowledge to every stakeholder. Due to vast use of computers and electronics devices and tremendous growth in computing power and storage capacity, there is explosive growth in data collection. The storing of the data in data warehouse enables entire enterprise to access a reliable current database. To analyze this vast amount of data and drawing fruitful conclusions and inferences it needs the special tools called data mining tools. This paper gives over view of the data mining systems and some of its applications.

Key Words: Data mining system architecture, Data mining application.

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Paper ID: ICRICEIT-24-110

PRECISION ROAD DAMAGE DETECTION USING UAV IMAGING AND DEEP LEARNING TECHNIQUES

*Telagamsetti Devi Sahithi [1], Tumma Shashank [2], Silumula Srikanth [3,] Dr. Ganesh B. Regulwar [4]

[1,2,3,4] Vardhaman College of Engineering , Hyderabad, Telangana,501218

*Corresponding Author

Email: devisahithi2004@gmail.com

ABSTRACT

This paper presents an innovative approach to automated road damage detection using Unmanned Aerial vehicle (UAV) imagery and deep learning techniques. Conventional methods of identifying road damage are often laborious and hazardous for human personnel, while UAVs and Artificial Intelligence (AI) technologies offer the potential to enhance efficiency and accuracy. Leveraging YOLOv4, YOLOv5, YOLOv7 and YOLOv8 algorithms, the proposed methodology focuses on object detection and localization within UAV images to identify various types of road damage. The ultimate goal is to augment the autonomous maintenance system for roads by promptly detecting and notifying maintenance companies about road damage using drone-captured images. Additionally, this project introduces novel classifications of pavement damage and proposes methodologies to enhance object detection specifically tailored for UAV-captured scenarios, thereby laying the groundwork for further advancements and research in this domain.

Key Words: Deep learning, Convolutional Network, YOLO.

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Paper ID: ICRICEIT-24-111

OPTIMIZATION AND ANALYSIS OF UAV FRAME DESIGNSFOR THERMOPLASTIC MANUFACTURING VIA FDM 3DPRINTING

*K Yadagiri [1] , Dr.B Laxmi Kantha [2] , A Bheem Raj [3] , A Bhasha [4]

[1, 3, 4] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2]Associate Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kyadagiriit@smec.ac.in

ABSTRACT

Thermoplastic materials have great usage through FDM 3D printing technology. Today, FDM 3D printer is available to the broad population, and some of the thermoplastic materials is widely used due to their small price and availability. Such thermoplastic materials are ABS (Acrylonitrile butadiene styrene) and PLA (Polylactic acid). In this paper the possibility of drone frame design optimization that can be made from ABS and PLA plastics using FDM 3D printing technology is analysed.

Key Words: thermoplastic material, ABS, PLA, design optimization, 3D printing.

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Paper ID: ICRICEIT-24-112

ELECTROMYOGRAPHY (EMG) SIGNALS WITH MACHINE LEARNING ANALYZE

*K Yadagiri [1], Dr. B LaxmiKantha [2], A Bheem Raj [3], A Bhasha [4]

[1, 3, 4] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2]Associate Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kyadagiriit@smec.ac.in

ABSTRACT

In this study, we will analyse EMG data using ml techniques. Electromyography (EMG) is a method employed in biomedical and biomechanics studies to quantify electrical impulses in myocytes. The mission is overarching goal is to create and assess ml algorithms for EMG signal analysis and processing, with the expectation that this will lead to better diagnostic and therapeutic results. Several unsupervised and supervised ml techniques will be investigated in this study to better identify trends in EMG information and make accurate findings. The findings of this study will enhance clinical & biomechanics studies by increasing our comprehension of the possibilities of ml in the processing of EMG data.

Key Words: Machine Learning, Signals.

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Paper ID: ICRICEIT-24-113

APPROXIMATION BOUNDS FOR CLUSTERING:AVERAGE LINKAGE, BISECTING K-MEANS

*K Yadagiri [1], A Bhasha [2], V Chandraprakash [3], S Veeresh Kumar [4]

[1,2,3,4] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: kyadagiriit@smec.ac.in

ABSTRACT

Hierarchical clustering is a widely used method to analyze data. See Murtagh and Contreras (2012); Krishnamurthy et al. (2012); Heller and Ghahramani (2005) for an overview and pointers to relevant work. In a typical hierarchical clustering problem, one is given a set of n data points and a notion of similarity between the points. The output is A hierarchy of clusters on the input. Specifically, a dendrogram (tree) is constructed where the leaves correspond to the n input data points and the root corresponds to a cluster containing all data points. Each internal node of the tree corresponds to a cluster of the data points in its subtree. The clusters (internal nodes) become more refined as we move down the tree. The goal is to construct the tree so that these deeper clusters contain points that are relatively more similar.

Key Words: Hierarchical clustering.

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BLOCKCHAIN AS A TOOL FOR CERTIFICATE AUTHENTICATION

M. Santhanam [1], *S.Karthikraj[2]

[1] Assistant Professor,V.R.S College of Engineering and Technology,Arasur,Tamilnadu-607107

[2]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: skarthikrajit@smec.ac.in

ABSTRACT

With the rise in counterfeit certificates, the credibility of academic credentials has been undermined, posing significant challenges for educational institutions and employers alike. Traditional methods of certificate verification are often inefficient and prone to error. To address these concerns, this paper proposes a block chain-based digital certificate system that ensures both authenticity and transparency in the verification process. Leveraging block chain's immutable and transparent properties, the proposed system allows educational institutions to generate and securely store certificates in a tamper-proof digital format. By creating a unique hash value for each certificate, it ensures that any alteration is easily detectable. Additionally, a QR code is embedded on each paper certificate, allowing users to verify its authenticity via mobile or web applications. This research highlights the essential security features needed for block chain-based document verification and examines current shortcomings in existing systems. The proposed solution offers a more reliable and efficient method for verifying academic credentials, safeguarding the integrity of educational certifications.

Keywords: Block chain, Smart contract, Digital certificate, Metamask

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SMART TRAFFIC FLOW DETECTION VIA CANNY EDGE DETECTION

M. Santhanam [1], *S.Karthikraj[2]

[1] Assistant Professor, V.R.S College of Engineering and Technology, Arasur, Tamilnadu-607107

[2]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: skarthikrajit@smec.ac.in

ABSTRACT

Current traffic management methods, such as timers or manual control, have been shown to be inefficient in addressing the growing issue of urban congestion. This project proposes a novel system that leverages real-time vehicle density analysis through Canny edge detection and digital image processing for dynamic traffic control. This automated system significantly enhances response time, vehicle flow management, reliability, and overall operational efficiency compared to traditional systems. As urban traffic congestion worsens, there is an urgent need to incorporate advanced technologies into traffic control mechanisms. The proposed system outlines a comprehensive process from image acquisition to edge detection, culminating in adaptive green signal allocation based on varying traffic conditions, demonstrated through four sample images. The effectiveness of this approach is validated through hardware implementation, proving its viability in real-world scenarios.

Keywords: Machine Learning, Edge computing

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Paper ID: ICRICEIT-24-116

ENHANCING CLOUD DATA SECURITY USING A HYBRID CRYPTOGRAPHIC APPROACH

S. KarthikRaj[1], M. Ramesh[2], S. Bavankumar[3], P. Sudharsan[4]

[1,2,3,4] Assistant Professor, St. Martin's Engineering College, Secunderabad-500100

*Corresponding Author

Email: skarthikrajit@smec.ac.in

ABSTRACT

Numerous industries, including the military, academia, and others, use the cloud for a variety of services and the storage of vast amounts of data. Without having direct access to the server computer, users can request access to or retrieval of data stored in this cloud. However, security is the main issue with online data storage that is on the cloud. There are several methods to address this security issue, but the most popular ones are steganography and cryptography. However, there are situations when a single method or algorithm is insufficient to offer high security. Thus, we present a novel security mechanism that combines several cryptographic algorithms, including steganography and symmetric key. Data security is achieved in this proposed system by using the algorithms 3DES (Triple Data Encryption Standard), RC6 (Rivest Cipher 6), and AES (Advanced Encryption Standard). Every algorithm makes use of 128-bit keys. The key data is safely stored using the LSB steganography technique. The algorithm, the key for the algorithm, and details about the encrypted portion of the file will all be included in the key information. The file is divided into three sections during encryption. With the aid of multithreading, these distinct file components will be encrypted concurrently using various encryption algorithms. The LSB technique inserts the important information into an image. By employing the AES, DES, and RC6 algorithms to store encrypted data on a single cloud server, our methodology ensures improved security and protection of customer data.

Key Words: AES Algorithm, RSA Algorithm, Blowfish Algorithm.

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Paper ID: ICRICEIT-24-117

DOCUMENTCLASSIFICATIONUSINGMACHINELEARNING TECHNIQUES

*Dr. B Laxmi Kantha[1], V Chandraprakash[2], A Bhasha[3], K Radha[4]

[1]Associate Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2, 3, 4] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: drblaxmiit@smec.ac.in

ABSTRACT

Automated classification of text documents into their meaningful classes has always been considered as a vital method to manage and process a vast amount of documents in digital forms that are widespread and continuously increasing. This kind of web information, popularly known as the digital/electronic information is in the form of documents, conference material, publications, journals, editorials, web pages, e-mail etc. People largely access information from these online sources rather than being limited to archaic paper sources like books, magazines, newspapers etc. But the main problem is that this enormous information lacks organized nature which makes it difficult to manage. Document classification is recognized as one of the key techniques used for organizing such kind of digital data. Document classification is an example of Machine Learning (ML)in the form of Natural Language Processing (NLP). By classifying text, we are aiming to assign one or moreclassesorcategoriestoadocument,makingiteasiertomanageandsort.The proposed system extracts data by pre-processing and extracts super-topics and subtopics with the help Pachinko Allocation Model (PAM) scheme. Then, the Naive Bayes Classifiers applied to classify, whole documents in to documents with similar subjects.

Key Words: NLP, PAM, TF-IDF ,Naive Bayes.

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Paper ID: ICRICEIT-24-118

FUEL EFFICIENT HIGH-DENSITY PLATOONING USING FUTURE CONDITIONS PREDICTION USING MACHINE LEARNING

*Dr. Dasari Madhavi [1], Sandhya Injeti [2], Dr M. Rama Subramanian[3], Prashanthi Gottimukkula [4] ,Dr V. Anantha Krishna [5] , G. S. L Poornima [6]

[1] Associate Professor, Department of CSE, Sridevi Women's Engineering College, Hyderabad-500075

[2, 6]Assistant Professor, Department of CSE, Sridevi Women's Engineering College, Hyderabad-500075

[3, 5]Professor, Department of CSE, Sridevi Women's Engineering College, Hyderabad-500075

[4] Assistant Professor, Department of CSE, Gokaraju Ranagaraju Institute of Engineering College, Hyderabad-500090

*Corresponding Author

Email:karrimadhavi16@gmail.com

ABSTRACT

A promising application of cooperative driving is high density platooning, which main goal is to reduce fuel consumption by driving with inter-vehicle distances below ten meters. The prediction of factors influencing the platoon capability to drive with such inter-vehicle distances the derived safe inter-vehicle distances, drives the potential fuel saving. Our aim is to study the influence of the prediction, especially the prediction horizon, on the achieved fuel saving as a function of different maneuver parameters. The contributions of this paper are: introducing the concept of maneuver reference to distribute the effort of maneuvering in truck platooning; linking the fuel consumption to a compensation time, that is the time during which the platoon will counter-balance the fuel consumption by benefiting from the reduced air drag; presenting an optimization method for maximizing the fuel saving depending on some predictive quality of service parameters.

Key Words: Cooperative driving, High density platooning, Prediction of factors

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Paper ID: ICRICEIT-24-119

STATISTICAL COLLABORATION TOWARDS GENERAL AND EFFICIENT BLACK-BOX OPTIMIZATION

*Dr B Laxmi Kantha[1], K Radha[2], G Sathish[3,]A Bhasha[4],S VeereshKumar[5]

[1]Associate Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2, 3, 4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*****Corresponding Author

Email: drblaxmiit@smec.ac.in

ABSTRACT

In this paper, we make the key delineation on the roles of resolution and statistical uncertainty in hierarchical bandits-based black-box optimization algorithms, guiding a more general analysis and a more efficient algorithm design. We introduce the optimum-statistical collaboration, an algorithm framework of managing the interaction between optimization error fax and statistical error fax evolving in the optimization process. We provide a general analysis of this framework without specifying the forms of statistical error and uncertainty quantifier. Our frame work and its analysis, due to their generality, can be applied to a large family of functions and partitions that satisfy different local smoothness assumptions and have different numbers of local optimums, which is much richer than the class of functions studied in prior works. Our frame work also inspires us to propose a better measure of the statistical uncertainty and consequently a variance adaptive algorithm VHCT. In theory, we prove the algorithm enjoys rate-optimal regret bounds under different local smoothness assumptions; in experiments, we show the algorithm outperforms prior efforts in different settings.

Key Words: Statistical collaboration, Framework, VHCT, Regret etc.

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Paper ID: ICRICEIT-24-120

DYNAMIC TIME-FREQUENCY ANALYSIS FOR ENHANCED SUSPICIOUS ACTIVITY DETECTION IN ANTI-MONEY LAUNDERING

M. Ramesh[1], S. KarthikRaj[2], S. Bavankumar[3], P. Sudharsan[4]
[1,2,3,4] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author
Email: mrameshit@smec.ac.in

ABSTRACT

The key tactic used by criminals to introduce proceeds of crime into the financial system is money laundering. Financial institutions bear the primary responsibility for identifying suspicious money-laundering activity. The majority of these institutions' current systems are rule-based and inefficient, with over 90% of false positives. The current rule-based anti-money laundering (AML) systems can be replaced by data science-based models that focus on the time characteristics of transaction behaviour and customer relationship management (CRM) features. In this article, we present a novel feature set based on time-frequency analysis that makes use of 2-D representations of financial transactions with the goal of enhancing the detection performance of suspicious transaction monitoring systems for AML systems. Simulated annealing is used for hyper parameter tuning, and random forest is used as a machine learning technique. Real banking data is used to test the developed algorithm, demonstrating the effectiveness of the findings in situations that are practically relevant. It has been demonstrated that the time frequency features can distinguish between suspicious and non-suspicious entities. Consequently, the area under curve results (above 1%) of the current data science-based transaction monitoring systems are significantly improved by these features.

Key Words: Anomaly detection, anti-money laundering, compliance, random forest algorithm, time frequency analysis, transaction monitoring.

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Paper ID: ICRICEIT-24-121

RAINFALL PREDICTION USING MACHINE LEARNING: A COMPARATIVE ANALYSIS OF MLR AND ARTIFICIAL NEURAL NETWORKS

M. Rajakannan[1], *M. Ramesh[2]

[1] Assistant Professor, Annamalai University, Cuddalore, Tamilnadu-60608002

[2]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author
Email: mrameshit@smec.ac.in

ABSTRACT

Rainfall plays a vital role in the economy of countries where agriculture is the primary source of income, such as India. Accurate rainfall forecasting is crucial not only for effective agricultural planning but also for safeguarding communities, particularly those in coastal regions, from risks associated with heavy rain and flooding. Early and reliable predictions allow individuals to take preventive measures, reducing potential losses and improving overall preparedness. This study focuses on developing an efficient rainfall prediction model using Multiple Linear Regression (MLR) and Artificial Neural Networks (ANN). The research compares the performance of various machine learning algorithms, including MLR, Neural Networks, K-means, and Naïve Bayes, to determine the most suitable approach for rainfall forecasting. The input dataset integrates multiple meteorological parameters such as humidity, temperature (minimum and maximum), pressure, cloud cover, and wind speed to enhance prediction accuracy. The proposed model is evaluated using metrics like Mean Absolute Error (MAE), accuracy, and correlation. Results indicate that the suggested approach outperforms existing methods in terms of precision and reliability, making it a promising solution for rainfall prediction and its associated applications in agriculture and disaster management.

Key Words: Rainfall prediction , Artificial Neural network.

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Paper ID: ICRICEIT-24-122

IOT-DRIVEN SMART STREET LIGHTING SYSTEM FOR ENERGY EFFICIENCY AND ADAPTIVE URBAN ILLUMINATION

M. Rajakannan[1], *M. Ramesh[2]

[1] Assistant Professor, Annamalai University, Cuddalore, Tamilnadu-608002

[2]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: mrameshit@smec.ac.in

ABSTRACT

The main consideration in the present field technologies are Automation, Power consumption and cost effectiveness. Automation is intended to reduce man power with the help of intelligent systems. Power saving is the main consideration for ever as the source of the power is getting diminished due to various reasons. As we all know that energy consumption has been increasing day by day so, to overcome the second sequences we are using IoT devices. This project proposes a model for modifying streetlight illumination by using sensors at minimum electrical energy consumption. When presence is detected, all surrounding streetlights glow at their brightest mode, else they stay in the dim mode. LED bulbs shall be implemented as they are better than conventional incandescent bulbs in every way. This shall reduce heat emissions, power consumption, and maintenance and replacement costs and carbon dioxide emissions. Coupled with SSSLS (Solar Smart Street Light System), massive energy-savings are envisioned. Also, a demonstration with a real-time proto type model involving costs and implementation procedure has been developed using internet of things to visualize the real time updates of street processing and notifying the changes occur.

Key Words: IoT, Internet.

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MANET (Mobile Ad-hoc Networks)

*M Sandya Rani[1]

[1]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: msandyaraniit@smec.ac.in

ABSTRACT

Discover the dynamic world of Mobile Ad-hoc Networks (MANET) through our specialized projects in NS2. At JP INFOTECH, we provide a wide range of innovative projects tailored to MANET, all meticulously crafted using the NS2 platform. Our projects enable students and researchers to explore the complexities of mobile ad-hoc networks, addressing real-world challenges and harnessing the power of NS2 for simulation and analysis. With our unique project ideas, you can embark on a journey of research and innovation, paving the way for academic excellence and a promising career in the realm of wireless communication. The Projects contains both MANET based Routing and MANET based Security concepts.

Key Words: Security, Computer Networks.

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Paper ID: ICRICEIT-24-124

ENHANCING COMPRESSIVE STRENGTH PREDICTION OF CALCINED CLAY CEMENTS WITH DATA AUGMENTATION IN LINEAR REGRESSION MODELS

*MSandya Rani[1]

[1]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: msandyaraniit@smec.ac.in

ABSTRACT

Cement production is a major contributor to global CO2 (Carbon dioxide) emissions. To minimize its environmental impact while maintaining the required mechanical properties of cement, there is a pressing need for sustainable production processes. This paper focuses on developing sustainable cement production processes by optimizing the mechanical properties of limestone calcined clay cement (LC3) using data-driven models based on artificial intelligence. The study explores the use of data augmentation techniques, specifically the copulas method, to improve the performance of linear regression models for linking the compressive strength of LC3 with its mix design. While data augmentation using copulas can be useful in augmenting tabular data, its effectiveness in improving linear regression performance may depend on the statistical characteristics of the original data. The method successfully generated additional data that preserved the original statistical properties, but it did not always lead to significant improvements in linear regression performance. The research highlights the potential of data-driven models for optimizing cement materials properties and emphasizes the importance of considering the statistical characteristics of the original data when applying data augmentation techniques.

Key Words: Artificial Intelligence, statistics.

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Paper ID: ICRICEIT-24-125

USING INTELLIGENT AGENTS FOR URBAN TRAFFIC CONTROL SYSTEMS

*M. Sandya Rani [1] , M.Sarojini Rani [2] , P Radhika krupalini [3],N Jeevan Jyothi [4]

[1]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2] T.K.R Engineering Colleges, Hyderabad, Telangana – 500097

[3] Ideal Institute of Technology, Kakinada, AP - 5330033

[4] B.V.C Engineering College, Odalarevu, AP - 533210

ABSTRACT

The usability and effectiveness of traffic management and traffic control systems greatly depends on its ability of reacting upon traffic patterns and permutations. There are several factors that affect the performance of conventional traffic control systems, for instance: changes in traffic flow, accidents, different behavior and travel demand. In this research we investigate how to apply autonomous intelligent agents in Urban Traffic Control.

Key Words: Artificial Intelligence, signals

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PAPER ID: ICRICEIT-24-126

ARTIFICIAL INTELLIGENCE -POWERED MACHINE LEARNING FOR MULTI-DISEASE IDENTIFICATION

*G Sathish[1], A Bhasha[2], T Bhargavi[3], V Chandraprakash[4]

[1,2,3,4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gsathishiit@smec.ac.in

ABSTRACT

One of the primary causes of death internationally is heart disease, and mortality rates can be reduced with prompt detection. Prominent research has demonstrated that the most recent artificial intelligence (AI) can be utilized to assess heart disease risk. To acquire the optimum performance from these AI models when the number of users increases, dynamic scalability was not taken into account in previous research. In order to address this issue, we suggested Health FaaS, an AI-powered smart healthcare framework that uses the Internet of Things (IoT) and a server less computing environment to lower the number of deaths from heart disease and save financial losses by lowering the number of misdiagnoses. The Health FaaS framework uses Internet of Things (IoT) devices to gather user health data, which is then sent to AI models running on a server less platform hosted on Google Cloud Platform (GCP).

Key Words: Scalability, FaaS, Prominent

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FINGERPRINT AND IMAGE PROCESSING FOR BLOOD GROUP IDENTIFICATION

*G Sathish[1], K Radha[2], A Bheemraj[3], A Sravani[4]

[1,2,3,4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gsathishiit@smec.ac.in

ABSTRACT

In order to ensure compatibility during organ transplants, transfusions, and prenatal care, blood group detection is an essential component of medical diagnostics. Although accurate, serological approaches used in traditional blood group detection methods necessitate intrusive procedures and laboratory infrastructure. This study investigates a novel method for blood group identification using fingerprint image processing. By utilizing the distinct ridge patterns and minute details found in fingerprints, this non-invasive technique seeks to offer a quick, accurate, and easily accessible way to identify blood types. In order to correlate particular patterns with blood group phenotypes, our suggested approach analyzes fingerprint photos using sophisticated image processing algorithms and machine learning techniques. Point-of-care diagnostics could be completely transformed by incorporating this technique into affordable and portable devices, especially in environments with limited resources. Initial findings show encouraging accuracy scores, emphasizing.

Key Words: fingerprint, detection.

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PAPER ID: ICRICEIT-24-128

AN IN-DEPTH REVIEW OF THE SCIENTIFIC RESEARCH ON DEEP REINFORCEMENT LEARNING IN PRODUCTION SYSTEMS

*G Sathish[1], S Veeresh Kumar[2], K Yadagiri[3], J Sravanthi[4]

[1, 2,3]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gsathishiit@smec.ac.in

ABSTRACT

Production systems face significant problems as a result of shorter product development cycles and fully customizable goods. These must not only handle a greater variety of products, but also facilitate high throughputs and offer a high degree of flexibility and resilience to process changes and unanticipated events. Deep Reinforcement Learning (RL) has being used more and more for production system optimization in order to overcome these obstacles. Deep RL, in contrast to other machine learning techniques, uses freshly gathered sensor data in close contact with its surroundings to allow for real-time reactions to system modifications. A thorough review of the outcomes has not yet been established, despite the fact that deep RL is now being implemented in production systems. This paper's primary contribution is to give practitioners and researchers a summary of applications.

Key Words: Deep Learning, Machine Learning.

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PAPER ID: ICRICEIT-24-129

SECURITY OF COMPUTER NETWORK INFORMATION AND PROTECTION STRATEGY BASED ON INTERNET OF THINGS

*A Sravani[1], S Veeresh Kumar[2], G Sathish[3], K Sai Teja[4]

[1, 2, 3]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4] UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: asravaniit@smec.ac.in

ABSTRACT

With the continuous development of network technology and information technology, network has become an indispensable part of people's daily life and production, and with the increasing demand for network information. The rapid development of computer network brings convenience to people's lives, but it also produces a series of computer network security problems, which infringe on people's privacy and interests. In view of this, based on the Internet of Things, this paper discusses the security of computer network information in detail, mainly analyses the security problems existing in the current computer network information, and puts forward some targeted protection strategies, in order to ensure the security performance of computer network information and ensure the reliable, continuous and stable operation of computer network system.

Key Words: Computer Network, information security.

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HARNESSING BIG DATA ADVANCES AND CHALLENGES IN DATA MINING

*Mungara S V V Satya Naryana[1],Mahammad Pasha[2] ,B. Jayapal[3],M. Ravinder[4]

[1]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2]Assistant Professor, KPRIT, Hyderabad, Telangana – 500088

[3,4] UG Scholar , Siddhartha Engineering College, Hyderabad, Telangana – 500088

*Corresponding Author

Email: Mungarasurya01@gmail.com

ABSTRACT

Big Data concerns large-volume, complex, growing data sets with multiple, autonomous sources. With the fast development of networking, data storage, and the data collection capacity, Big Data is now rapidly expanding in all science and engineering domains, including physical, biological and biomedical sciences. This article presents a HACE theorem that characterizes the features of the Big Data revolution, and proposes a Big Data processing model, from the data mining perspective. This data-driven model involves demand-driven aggregation of information sources, mining and analysis, user interest modeling, and security and privacy considerations. We analyze the challenging issues in the data-driven model and also in the Big Data revolution.

Key Words: Data Storage, User Privacy, Technological Domains.

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PAPER ID: ICRICEIT-24-131

DESIGN AND ANALYSIS OF MILLIMETER-WAVE ANTENNAS

Surabhi Varshitha[1],Mahammad Pasha[2] ,Alugula Sravani[3],M. Ravinder[4]

[1]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2]Assistant Professor, KPRIT , Hyderabad, Telangana – 500088

[3] Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[4] UG Scholar, Siddhartha Engineering College, Hyderabad, Telangana – 500088

*Corresponding Author

Email: asravaniit@smec.ac.in

ABSTRACT

The increased data traffic and change in the requirements of users paved the way for exploring the unexplored millimeter range of frequencies. These ranges of frequencies are best suitable for communication purposes, especially for 5G applications. Antennas are a key element in communication systems. Since the millimeter-wave antennas possess compact size, multiple antennas are used in the form of an array. The antenna arrays are popularly used since it benefits the performance of output parameters. This paper gives a brief description of millimeter-wave technology and its basic characteristics along with design considerations and design challenges of antennas at millimeter-wave frequency. This paper also covers some of the millimeter-wave antenna and antenna array designs.

Key Words: Millimeter wave antenna, 5G systems, Metamaterials.

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PAPER ID: ICRICEIT-24-132

AN INVESTIGATION REPORT ON ARTIFICIAL INTELLIGENCE AND ITS PRACTICAL APPLICATIONS

*T Bhargavi[1], B Shivani[2], A Sravani[3], G Sathish[4]

[1,3,4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: tbhargaviit@smec.ac.in

ABSTRACT

Creating intelligent machines, particularly clever computer programs, is the science and engineering behind it. Though AI does not have to limit itself to techniques that are observable in biology, it is tied to the related goal of utilizing computers to study human intellect. Although there isn't a universally accepted definition of artificial intelligence (AI), it is generally understood to be the study of computations that enable perception, reason, and action. The amount of data produced to day-by both robots and humans—far exceeds the capacity of humans to process, comprehend, and use that data to make intricate judgments. All computer learning is built on artificial intelligence, which is also the foundation for all complicated decision-making in the future. This essay explores the characteristics of artificial intelligence, including its definitions, history, applications, Development.

Key Words: Artificial Intelligence, Data

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PREDICTING PLANT GROWTH IN GREENHOUSE ENVIRONMENTS USING DEEP LEARNING

*T Bhargavi[1], K Rasavika [2], R Adithya[3], S Veeresh Kumar[4]

[1, 4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2,3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: tbhargaviit@smec.ac.in

ABSTRACT

Plant development and production forecasting are crucial tasks for greenhouse farmers and farmers in general. Creating designs that closely replicate growth and yield may assist growers in improving environmental management for higher output, healthy grant and market demand, and cheaper costs. Deep Learning (DL) and Machine Learning (ML) are developing as powerful new analytical tools. In controlled greenhouse circumstances, the proposed research combines machine learning and deep learning approaches to estimate production and plant development in two separate situations: tomato yield forecasting and Ficusbenjamina stem growth. In the prediction formulae, we use the LSTM neuron model to construct a new deep RNN. The RNN structure is utilised to change the intended increase parameters based on prior yield, growth, and stem diameter data, as well as microclimate circumstances. A comparative investigation is presented to evaluate the overall performance of the various solutions, which includes machine learning methods such as assist vector regression and random woody area regression, as well as the propose rectangle error criterion.

Key Words: Machine Learning, Linear Regression, Deep Learning.

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DATA LEAKAGE DETECTION SYSTEM

*T Bhargavi[1], Ch Sanjana Reddy [2], Anjuman Pathan[3], G Gouthami[4]

[1, 4]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

[2,3]UG Scholar, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: tbhargaviit@smec.ac.in

ABSTRACT

A data distributor gave private information to a group of supposedly reputable individuals (third parties). A portion of the data has been compromised and is now in an unauthorized location (like online or on a laptop). The distributor must decide whether it is more likely than not that one or more agents, as opposed to an individual, obtained the stolen information. We offer data dissemination strategies (across the agents) to improve the chances of detecting leaks. In some cases, adding "realistic and fraudulent" data inputs can help us discover the leak and the guilty party more quickly.

Key Words: Security, Authentication

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PAPER ID: ICRICEIT-24-135

FUTURE OF 5G WIRELESS SYSTEM

*G Prabakaran [1]

[1]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gprabaharanit@smec.ac.in

ABSTRACT

Future 5G wireless networks will aspect new contests, as well as growing claim on network capacity to support a huge number of devices running application necessitating high data rates and always on connectivity , hugely and supportive the emerging business models in the wireless network market demanding networks to be more open. New challenges initiative new resolutions and involve changed plans in the network positioning ,management, and operation of future 5G wireless networks equated to those of current wireless networks. One of the key purposes of future 5G wireless networks is to compliantly provide service customized networks to a wide variety of services using integrated cloud reserve and wireless/wired network possessions, which may be presented by several infrastructure providers and/ or operators.

Key Words: wireless networks, security.

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PAPER ID: ICRICEIT-24-136

TRANSFORMING MANUFACTURING WITH ARTIFICIAL INTELLIGENCE: INSIGHTS, CHALLENGES, AND FUTURE DIRECTIONS

*G. Prabakaran [1]

[1]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gprabaharanit@smec.ac.in

ABSTRACT

The manufacturing sector is experiencing a transformative era driven by Artificial Intelligence (AI), which enables intelligent automation, improves efficiency, and supports data-driven decision-making. This advancement optimizes resource allocation and enhances production planning precision. This paper presents a comprehensive review of the current AI landscape in manufacturing, focusing on its applications in predictive maintenance, quality control, process optimization, supply chain management, robotics, automation, and intelligent decision support systems. Additionally, it examines challenges faced by the industry and the potential of AI to address them. The review highlights advancements in areas like explainable AI, human-robot collaboration, edge computing, and IoT integration. Recommendations, best practices, and collaborative opportunities are provided to guide future advancements in the field.

Key Words: Artificial Intelligence, Machine Learning.

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PAPER ID: ICRICEIT-24-137

MACHINE LEARNING FOR IDENTIFYING INJURED ELEMENTS IN COMPUTATIONAL MODELS OF SPINAL CORD INJURY

*G Prabakaran [1]

[1]Assistant Professor, St. Martin's Engineering College, Secunderabad, Telangana – 500100

*Corresponding Author

Email: gprabaharanit@smec.ac.in

ABSTRACT

This study leverages machine learning (ML) algorithms to identify tissue damage in computational models of spinal cord injury (SCI) based on mechanical outputs. Three datasets—corresponding to gray matter, white matter, and their combination—were constructed from comparisons between histological images from SCI experiments in non-human primates and subject- specific finite element (FE) models. Four ML algorithms were assessed using cross-validation and the area under the receiver operating characteristic curve (AUC) metric. Following hyper parameter optimization, AUC mean values ranged from 0.79 to 0.82, with a standard deviation no greater than 0.02. Among the algorithms, k-nearest neighbors and logistic regression demonstrated superior performance in identifying injured elements compared to support vector machines and decision trees. However, the precision and recall metrics varied depending on the dataset and algorithm, highlighting sensitivity to class imbalances. These findings emphasize the need for better feature definition and tailored algorithm selection when identifying damage in gray and white matter tissues. The results contribute to understanding the relationship between mechanical loading and tissue damage in SCI, with implications for developing prevention strategies. Clinical Relevance: By linking FE model predictions to tissue damage, this approach enhances the clinical utility of FE models. Combined with imaging technologies, these models can predict damage extent in animal studies and inform treatment planning decisions.

Key Words: machine learning , Artificial Intelligence.

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PAPER ID: ICRICEIT-24-138

USING MACHINE LEARNING AND IMAGE RECOGNITION TO EVALUATE WATER QUALITY

Anil Bellapu [1], * Dr. Dileep kumar Padidem [2],T Lakshmi Prasanna [3]

BI Engineer/Solution Architect, Costco Wholesale

[2] Professor, Ramireddy Subbarami Reddy Engineering College, Kavali, A.P.- 524201

[3] Assistant Professor, Narayana Engineering College, Nellore, A.P.-524004

*Corresponding Author

Email: padidemdileep@gmail.com

ABSTRACT

This research project explores the application of machine learning in assessing water quality through image recognition. The study leverages a diverse dataset of water samples collected from various sources across Mumbai, encompassing ponds, lakes, water outlets, and sewage points. Multiple parameters, including pH, conductivity, turbidity, and dissolved oxygen content, are examined in relation to the resulting HEX colour code, which serves as a visual representation of water quality. The central hypothesis posits that employing machine learning algorithms can reliably predict water safety based on these environmental parameters through image recognition of the colour gradient of the water samples. A systematic approach to data collection, standardisation, and logistic regression modeling has been employed. Results demonstrate the effectiveness of the logistic regression model in predicting water safety with an 85% accuracy rate, highlighting its potential for real-time water quality monitoring and risk assessment. Nevertheless, this study recognises its limitations and the need for further research to refine the model's predictive accuracy and address variations across different geographical regions and water sources. This research aims to contribute to the development of innovative approaches for water quality assessment and therefore, environmental preservation.

Key Words: Machine learning, water sources, pH, conductivity, turbidity.

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